Week 5 Study Questions

1. Re write Preparing and Presenting Effective Research Posters

**Read** the "Preparing and Presenting Effective Research Posters" article.

* + Miller (2007), gives a very in depth depiction of what should be in the perfect poster. "Expert in communications and poster design recommend planning your poster around two or three key points that you want your audience to walk away with, then designing the title, charts, and text to emphasize those points" (Miller, 2007). The author gives great examples of what not to fdo as well as what to do in place of common mistakes. He also suggests that synonyms and acronyms be used after the researcher has presented the full test title or statistical test. This allows the audiences the availability to read the information without becoming confused. I think when knowing your audience helps us to make decisions about what information we should include, however, we should arrange that information, also what kind of supporting details will be necessary for the reader to understand what you are presenting. According to (Salkind, 2012) "It also influences the tone and structure of the document". Present and to develop an effective argument, that we need to be able to appeal to also address our audience.

Although the instructor is often the only person who will read the finished product, customizing a paper to her level of knowledge can run the risk of leaving out very important information, since many instructors know far more about our topic than the average reader would know. In addition, omitting information that the instructor already knows can result in an unbalance and also weak paper.

* + Miller, Jane, E. (2007). Preparing and presenting effective research posters. Health Research and Educational Trust. 42:1 Doi: 10.1111/j.1457-6773.2006.00588.x Retrieved from UOP class forum.

Salkind, N.J. (2012). Exploring research (8th ed.). Retrieved from The University of Phoenix eBook Collection database.

Week 5 DQ 2

Re Write Obedience and Ethics: Benefits and Costs of Psychological Conformity Studies

* + I have seen this video a hand full of times throughout my time at UOP. The same questions keep coming to mind. Can we actually say that what want on in Nazi Germany is even close to the Milgram study of obedience to authority? The obedience study only encompasses 638 participants in one area of the United states. Two, we really do not know what methods of control that Hitler and his minions used against their fellow countrymen to caused them to comply with such horrible commands. Three, fear tactics seem to be more of a justification for complying with said commands. We know that those who did not comply were executed for being sympathizers during that area. Therefore, it is still a difficult for me to accept that people would allow such horrific things to occur to other people who were not deserving of such punishments. However, I did some further research on Milgram experiment and his Agency theory that gave me idea of what he was really trying to show about humanity and its moral compass.

McLeod (2007), explains Milgram Agency theory has two states of behavior:

   1.) Autonomous state: people direct their own actions, and they take responsibility for the results of those actions.

    2.) Agentic state: people allow others to direct their actions, and then pass off their responsibility for the consequences to the person giving the orders. In other words, they act as agents for another person's will (McLeod, 2007).

It also stated that in order for a person to enter into the Agentic state: the person giving orders is perceived as qualified and as legitimate, two, the person being ordered about is able to believe that the authority will accept responsibility for what happens (McLeod, 2007).

Ethical issues:

Deception- participants actually believed that they were actually shocking a real person and were unaware that the person was confederate

Ethics code 8.07a Deception in research states that psychologist do not conduct a study involving deception unless they have determined that the use of deceptive techniques is justified by the studies significant perspective scientific, educational, or applied value (APA, 2010). However, psychologist is to explain this deception towards the end of the study during data retrieval 8.07c (APA, 2010). Therefore, Milgram study is justified due to what he and his staffed learned and what it has taught the community at large. Other studies have also been done in other cultures proving Milgram point and extending it (McLeod, 2007).

**From 4 What is the purpose of Psychometric testing and why is it used?**

This is a scientific test used to measure an individual’s mental capabilities and their behavioral style. These tests determine whether an individual is suitable for a position based on their cognitive abilities and personality characteristics. Employers use this kind of test to identify abilities that are difficult to pick up on a face to face interview. This is kind of test are objective and unbiased and all the candidates are usually subjected to the same kind of test. Based on the results of the psychometric test one can know their performance in relation to other people. This test is usually used at the initial stages to select individuals to proceed to other stages of the interview process (Adams & Texas Woman's University, 2012).

**References**

Adams, E. D., & Texas Woman's University. (2012). *The psychometric properties of an instrument measuring intrapartum nurses' beliefs related to birth practice*. (Dissertation Abstracts International, 74-7.

**From 4 The difference between descriptive and inferential statistic**

Inferential statistics helps us examine how the data relates to hypotheses and hence generalizations can be made to cover a larger number of respondents than were measured in that research. Descriptive statistics provides information about the immediate group of raw data. This kind includes all the data of the population that you are interested. Whereas inferential statistics that not include all the population. The researcher basically has to use a smaller population to represent a larger population. For example, if a research was to be done on the drop out cases in campus in the whole of USA, a smaller population is chosen such as Harvard University, the research will be the drop out cases in Harvard and the results would be generalized to the drop out cases in the whole of USA campuses (Sahu, 2010)

**From 4 6. Descriptive research and the difference between it and causal comparative or experimental research.**

 Descriptive research and causal comparative or experimental research differ. In descriptive research, the researcher seeks to answer the question why. It describes the reasons for certain actions or behaviors of groups of people. Descriptive researchers use systematic observation to observe behaviors and people over time in order to come up with data. This kind of research decides on the participants and the instrument of research. On the other hand, in experimental research, there is the use of a control group. The respondents are picked randomly and placed in two groups, the actual research sample and the control sample. Each group is similar to the other before the manipulative variable is introduced (Salkind, 2012).

**References**

Salkind, N. J. (2012). Exploring research (8th ed.). Upper Saddle River, NJ: Pearson.

* **Week 5 DQ 1​**
  1. **​**Preparing and Presenting Effective Research Posters  
     **Read** the "Preparing and Presenting Effective Research Posters" article.
* **2. Week 5 DQ 2**

Obedience and Ethics: Benefits and Costs of Psychological Conformity Studies

* Psychological experiments have shown that the natural human desire to conform can lead people to mistrust their own experiences, turn a blind eye to the suffering of others, and even inflict harm on the defenseless. But these findings have come at a price: the potential emotional damage of those being studied. This three-section program grapples with some of the thorny ethical issues arising from psychological research into obedience and conformity as it questions the ethicality of Stanley Milgram’s Study of Obedience; uses a proposed student project on bullying to address the need for ethical constraints when conducting experiments; and weighs the benefits and costs of increased ethical regulation of research. A part of the series *Applied*
  1. **What is Malleability of Memory and how can it affect it legal cases.**
  2. **What should be contained in a research proposal?**
  3. **What is the importance of a good Poster Presentation. How could this help boost our grant approval for your research?**
  4. **How important is a clear Hypotheses in your Research Proposal.**
  5. **Is it important for the literature review to relate to your study and the importance of recent reviews and past reviews.**
  6. **What is the** Benefits and Costs of Psychological Conformity Studies like the Milgrim study of obedience to authority? How do you feel about this type of study?
  7. **What is A Research Poster?**
  8. How should you Present Statistical Test Results on your poster presentation

Milgram experiment and his Agency theory that gave me idea of what he was really trying to show about humanity and its moral compass.

**Notes for question #1**

*Reference Loftus speaks: The malleability of memory* [Video file]. (2009). Retrieved May 20, 2017, from <https://fod.infobase.com/PortalPlaylists.aspx?wID=18566&xtid=41313> ( Please use this as a reference for this question)

<http://fod.infobase.com/p_ViewVideo.aspx?xtid=41313#>

[Loftus Speaks: The Malleability of Memory](http://fod.infobase.com/p_ViewVideo.aspx?xtid=41313)

THAT'S ONE REASON WHY THIS SUBJECT MATTER IS SO IMPORTANT. THERE'S ANOTHER KIND OF CASE THAT I'VE BEEN INVOLVED IN LATELY AND THESE INVOLVE REPRESSED MEMORY ACCUSATIONS. AND BECAUSE I'M ABOUT TO INTRODUCE A VERY SENSITIVE TOPIC, BECAUSE WHEN WE TALK ABOUT REPRESSED MEMORY ACCUSATIONS, WE'RE OFTEN TALKING ABOUT ALLEGEDLY REPRESSED MEMORIES FOR THINGS LIKE SEXUAL ABUSE I THINK IT'S IMPORTANT TO STOP FOR A SECOND AND ACKNOWLEDGE THAT UNFORTUNATELY IN OUR SOCIETY WE HAVE A LOT OF GENUINE CASES OF SEXUAL ABUSE AND THAT THESE VICTIMS - THE WOMEN, THE CHILDREN, THE MEN WHO HAVE BEEN VICTIMS OF SEXUAL CRIME - DESERVE OUR COMPLETE SYMPATHY, EMPATHY AND ATTENTION. BUT I'M NOT TALKING ABOUT THE WOMAN WHO KNEW HER WHOLE LIFE THAT SHE WAS MOLESTED AND MAYBE EVENTUALLY GOT THE COURAGE TO TELL SOMEBODY ABOUT IT. I'M TALKING ABOUT ONE SPECIFIC KIND OF SITUATION AND IT'S EXEMPLIFIED BY A FAMOUS CASE IN THE UNITED STATES INVOLVING THE RAMONA FAMILY. THE MAN THAT YOU'RE LOOKING AT IS GARY RAMONA. HE WAS AN EXECUTIVE WITH ONE OF OUR LARGE WINERIES IN CALIFORNIA. HE HAD A FANTASTIC LIFE, HE THOUGHT. VICE-PRESIDENT OF THIS WINERY MAKING $400,000 A YEAR, HAD A TERRIFIC FAMILY, LIVED IN A BEAUTIFUL HOUSE. HIS WORLD CAME CRASHING DOWN WHEN HIS DAUGHTER, HOLLY, WENT INTO THERAPY AND THERE SHE DISCOVERED SOMETHING THAT SHE APPARENTLY DIDN'T KNOW BEFORE. SHE DISCOVERED THROUGH THIS PSYCHOTHERAPY THAT HER FATHER HAD RAPED HER BETWEEN THE AGES OF FIVE AND 16, INCLUDING NUMEROUS RAPES, BEING FORCED TO HAVE SEX WITH THE FAMILY DOG, PRINCE, ALL ALLEGEDLY BURIED INTO HER UNCONSCIOUS UNTIL THE THERAPY MADE HER AWARE OF THESE EXPERIENCES. HOLLY SUED HER FATHER FOR THE ABUSE. AND IN AN INTERESTING TWIST AND WHAT MADE THIS CASE SO FAMOUS IN THE UNITED STATES IS THE FATHER TURNED AROUND AND SUED THE THERAPIST FOR PLANTING FALSE MEMORIES IN THE MIND OF HIS DAUGHTER AND THE FATHER WAS AWARDED A HALF A MILLION DOLLARS BY A JURY IN NAPA, CALIFORNIA. SO THIS WAS THE FIRST CASE WHERE A THIRD PARTY, IN THIS CASE THE FATHER, WAS ABLE TO SUE THE THERAPIST

- THE FATHER WAS NOT THE PATIENT BUT HE SUED THE THERAPIST FOR PLANTING FALSE MEMORIES AND RECEIVED A SIZABLE JUDGMENT. SO WHAT'S GOING ON IN THIS SITUATION? HOW CAN PEOPLE BE LED TO BELIEVE THAT THEY WERE VICTIMS OF TEN YEARS OF RAPES AND FORCED BESTIALITY WHEN IN FACT THIS ALMOST CERTAINLY DIDN'T HAPPEN? I THINK THAT THE WORK THAT I AND MY STUDENTS AND COLLABORATORS HAVE BEEN DOING CAN HELP US UNDERSTAND THE MEMORY MISTAKES THAT OCCUR IN THESE KINDS OF SITUATIONS AND I WANT TO TELL YOU A LITTLE ABOUT SOME OF THE OLDER WORK THAT YOU MAY HAVE READ ABOUT AND NOW THE NEWER KINDS OF FINDINGS THAT WE'VE BEEN DISCOVERING MORE RECENTLY. SO IN MY WORK WE USE A COUPLE OF DIFFERENT PARADIGMS AND I THINK OF THESE TWO PARADIGMS AS KIND OF MAPPING ON TO THE EYEWITNESS SITUATION AND MAYBE THE ALLEGATION OF REPRESSED MEMORY SITUATION. IN ONE PARADIGM WHICH WE CALL THE MISINFORMATION PARADIGM, WHAT THE EXPERIMENTS LOOK LIKE IS PEOPLE SEE SOME SORT OF AN EVENT, MAYBE A SIMULATED ACCIDENT OR A SIMULATED CRIME. MAYBE WE STAGE A LIVE EVENT IN FRONT OF WITNESSES. LATER ON THEY'RE GIVEN SOME POST-EVENT INFORMATION AND FINALLY THEY'RE TESTED. WE WANT TO KNOW WHAT YOU ACTUALLY REMEMBER SEEING YOURSELF. AND OF COURSE WE FIND IN MANY OF THESE SITUATIONS A MISINFORMATION EFFECT THAT WITH POST-EVENT INFORMATION IS MISLEADING. IT CAN INTERFERE, DISTORT, TRANSFORM SOMEBODY'S MEMORIES FOR AN EVENT THAT THEY TRULY DID EXPERIENCE. BUT IN THE NEWER STUDIES THAT GO UNDER THE RUBRIC OF RICH FALSE MEMORY THERE'S NO EVENT THAT HAPPENS, BUT WHAT WE DO IS PLY PEOPLE WITH SUGGESTION ABOUT THE PAST AND THEN WE SEE WHETHER OR NOT THEY ARE SEDUCED BY THE SUGGESTION AND START TO REMEMBER THINGS THAT DIDN'T HAPPEN. WE TEST THEIR MEMORY FOR THEIR CHILDHOOD OR RECENT PAST. AND SO, FOR EXAMPLE, IF YOU WERE GOING TO COME INTO A LABORATORY SITUATION AND BE A PART OF A MISINFORMATION PARADIGM, THE FIRST PARADIGM, I MIGHT SHOW YOU AN EVENT OF SOME SORT

- MAYBE IT WOULD BE A VIDEO EVENT, MAYBE IT WOULD BE A LIVE EVENT, MAYBE IT WOULD BE AN EVENT THAT WOULD UNFOLD THROUGH A SERIES OF SLIDES. AND SO IN SOME OF OUR CURRENT WORK WE'RE ACTUALLY USING EVENTS THAT UNFOLD IN A SERIES OF SLIDES. IT'S JUST EASIER TO GET CONTROL OVER THE MATERIALS. IN ONE OF OUR EVENTS A WOMAN IS WALKING DOWN THE STREET, AND THEN MORE THINGS HAPPEN. A MAN APPROACHES HER, HE KNOCKS INTO HER, SHE DROPS HER BELONGINGS. HE REACHES OVER, APPEARING TO HELP, BUT ACTUALLY HE REACHES INTO HER BAG AND PULLS HER WALLET OUT AND HE PUTS IT INTO HIS JACKET POCKET. AND THEN MORE THINGS HAPPEN AND EVENTUALLY THE WOMAN NOTICES HER WALLET IS MISSING AND SHE STARTS TO TALK TO NEARBY PEOPLE TO SEE IF ANYBODY CAN REMEMBER ANYTHING OR SAW ANYTHING. NOW THE POST-EVENT INFORMATION IS INFORMATION THAT COMES TO THESE WITNESSES AFTER THE EVENT IS COMPLETELY OVER. AND SO IT MIGHT BE A VERSION OF THE EVENT ALLEGEDLY REMEMBERED BY SOME OTHER WITNESS. IT MIGHT BE READ TO THE SUBJECT. IT MIGHT BE SOMETHING THAT THE SUBJECT READS HIMSELF OR HERSELF. AND THEN OUR SUBJECTS ARE TESTED. SO IF THE EVENT SHOWED THE THIEF PUTTING THE WALLET IN HIS JACKET POCKET, THE POST-EVENT INFORMATION MIGHT SUGGEST THAT HE PUT IT IN HIS PANTS POCKET. THIS IS WHAT WOULD HAPPEN IN A MISINFORMATION EXPERIMENT AND THEN PEOPLE WOULD BE TESTED. WE WANT TO KNOW EXACTLY WHAT YOU ACTUALLY SAW AT THE TIME OF THE EVENT, AND UNDER MANY CONDITIONS PEOPLE WILL CLAIM THAT THEY SAW THE MISINFORMATION. THAT'S WHAT THEY REMEMBER, THAT'S BECOME THEIR MEMORY. WE'VE DONE OTHER EXPERIMENTS IN THE PAST THAT USED THIS SAME PROCEDURE, AND SO, FOR EXAMPLE, WE'VE SHOWN PEOPLE SIMULATED ACCIDENTS WHERE A CAR GOES THROUGH AN INTERSECTION WITH A STOP SIGN AND WITH A SINGLE LEADING QUESTION WE CAN GET PEOPLE TO REMEMBER THAT THEY SAW IT GO THROUGH THE INTERSECTION WITH A YIELD SIGN INSTEAD OF A STOP SIGN. IN SOME RECENT WORK, AND THIS IN COLLABORATION WITH MAIA COOK WHO'S A GRADUATE STUDENT AT THE UNIVERSITY OF CALIFORNIA IRVINE AND HER CHIEF PHD ADVISOR, DON HOFFMAN, AND ANOTHER GRADUATE STUDENT, JULIE KWAK, A PAPER THAT WE'RE NOW WRITING UP, IT'S KIND OF AN INTERESTING EXAMPLE, A DIFFERENT EXAMPLE, AND IN ORDER TO LET YOU EXPERIENCE THIS I WANT TO JUST DO A LITTLE DEMONSTRATION HERE WITH YOU NOW. AND SO YOU'RE GOING TO BE SUBJECTS AND YOU'RE GOING TO SEE SOME FACES AND THESE ARE YOUR STUDY FACES

- THE ONES YOU'RE GOING TO HAVE TO REMEMBER LATER ON. NOW IN A REAL EXPERIMENT WE'D LET SOME TIME GO BY JUST LIKE HAPPENS AFTER A CRIME OCCURS AND SOME TIME GOES BY BEFORE THE POLICE COME AND START TO QUESTION WITNESSES. SO IMAGINE SOME MORE TIME HAS GONE BY, AND NOW WHAT I WANT YOU TO DO IS YOU DON'T ACTUALLY HAVE TO TAKE A PIECE OF PAPER, BUT IF YOU HAVE ONE HANDY, IF YOU HAPPEN TO BE TAKING ANY NOTES YOU CAN WRITE DOWN ON A CORNER. I'M GOING TO SHOW YOU SOME PAIRS OF FACES AND IF YOU RECOGNIZE THE ONE ON THE LEFT YOU WOULD PUT DOWN AN "L" AND IF YOU RECOGNIZE THE ONE ON THE RIGHT YOU PUT DOWN AN "R" OR YOU CAN JUST THINK THESE TO YOURSELF. I DON'T WANT YOU TO SAY ANYTHING OUT LOUD AND DON'T SAY ANYTHING TO ANYBODY NEXT TO YOU. JUST FOR YOURSELF, IS IT THE ONE ON THE LEFT OR THE RIGHT? THINK TO YOURSELF. THE LEFT OR THE RIGHT? THINK FOR YOURSELF. NOW WE LET MORE TIME... AND NOW THE PERSON IS AT A POLICE STATION, FOR EXAMPLE, AND IS GOING TO HAVE TO TRY TO RECOGNIZE THE FACES THAT WERE ORIGINALLY SEEN. AND WHAT I'D LIKE TO SEE YOU DO NOW IS RAISE YOUR HAND WHEN I CALL THE ANSWER THAT YOU WOULD GIVE. SO THIS IS NOW YOUR FINAL TEST. PEOPLE WHO RECOGNIZE THE ONE ON THE LEFT RAISE YOUR HAND. OKAY, THE ONE ON THE RIGHT - RAISE YOUR HAND. IF YOU LOOK AROUND I THINK YOU SEE NO RIGHTS MAYBE, I CAN'T TELL IF THERE ARE ANY. THE LIGHTS ARE REALLY BRIGHT UP HERE BUT THERE WAS A LOT OF LEFTS THAT'S FOR SURE. WHO RECOGNIZES THE ONE ON THE LEFT? RAISE YOUR HAND. OKAY, JUST A FEW HANDS. HOW ABOUT THE ONE ON THE RIGHT? ALRIGHT, QUITE A FEW HANDS. WHO RECOGNIZES THE ONE ON THE LEFT? RAISE YOUR HAND. QUITE A FEW HANDS. THE ONE ON THE RIGHT? QUITE A FEW HANDS! HOW CAN THAT BE? HOW CAN HALF OF YOU BE RECOGNIZING THE ONE ON THE LEFT AND THE OTHER HALF THE ONE ON THE RIGHT? LET ME TELL YOU WHAT WENT ON HERE. I SHOWED YOU THREE FACES IN THE ORIGINAL STUDY PHASE AND I TESTED YOU IN THE FINAL TEST WITH PAIRS OF FACES. THERE'S THE RIGHT ANSWER FOR THE FIRST PAIR. THERE'S THE RIGHT ANSWER FOR THE SECOND PAIR. AND THERE'S THE RIGHT ANSWER FOR THE THIRD PAIR. BUT HOW COME SO MANY OF YOU WERE WRONG ON THAT THIRD PAIR? THE ANSWER IS THAT SOMETHING DIFFERENT HAPPENED IN THE MIDDLE. IN THE MIDDLE I TESTED YOU WITH THE ORIGINAL FACE AND A COMPLETELY NOVEL ONE AND YOU HAD ANOTHER EXPOSURE TO THAT ORIGINAL FACE. FOR THE SECOND PAIR YOU WEREN'T TESTED AT ALL. AND FOR THE THIRD PAIR I SNUCK IN AN ALTERED VERSION OF THE FACE. I INDUCED YOU TO PICK THAT WRONG BUT SIMILAR FACE, AND NOW WHEN I GAVE YOU THE FINAL TEST YOU STUCK WITH THAT WRONG FACE EVEN WHEN THE TRUTH WAS STARING YOU IN THE FACE. YOU DIDN'T RECOGNIZE IT ANYMORE. WHY? FOR SOME OF YOU THAT ALTERED FACE HAD BECOME YOUR MEMORY. NOW WE'VE COLLECTED LOTS OF DATA USING THIS PARADIGM WITH MANY MORE FACES AND MANY, MANY EXPERIMENTS. AND BECAUSE MY LASER POINTER DOESN'T SEEM TO BE WORKING HERE I'M JUST GOING TO SUMMARIZE FOR YOU WHAT HAPPENS. WHEN I INDUCE YOU TO PICK AN ALTERED FACE, BECAUSE THE REAL GUY ISN'T THERE, ONLY A SOMEWHAT SIMILAR LOOKING ONE IS THERE, MANY PEOPLE WILL DO AS WE SAW HERE: STICK WITH THE ALTERED FACE AND THEY DON'T RECOGNIZE THE TRUE FACE ANYMORE. AND THAT'S WHAT THESE SLIDES WOULD REVEAL IF I WALKED YOU THROUGH THE ACTUAL DATA FROM THESE EXPERIMENTS. SO WE HAVE SHOWN IN A SERIES OF SOME 15-ODD STUDIES THAT PEOPLE CAN BE SEDUCED TO PICK A WRONG FACE AND IT PREVENTS THEM FROM RECOGNIZING THE TRUTH LATER ON. NOW YOU MAY THINK THIS IS A LITTLE BIT ARTIFICIAL BECAUSE WE'RE WORKING WITH THESE CONSTRUCTED FACES, BUT I WANT TO TELL YOU A LITTLE BIT ABOUT WHY THIS IS IMPORTANT AND HOW IT MAY HAVE HAPPENED IN AN ACTUAL CASE. WE HAVE A VERY POPULAR NEWS PROGRAM, 60 MINUTES, THAT'S ON EVERY SUNDAY NIGHT, AND TWO WEEKS AGO THERE WAS A STORY OF ONE OF THE WRONGFUL CONVICTIONS THAT'S IN THAT COLLECTION OF THE INNOCENCE PROJECT. IN FACT, A BOOK HAS BEEN WRITTEN ABOUT THIS CASE. IT INVOLVES A RAPE VICTIM, JENNIFER THOMPSON-CANNINO, WHO ACTUALLY WAS RAPED WHEN SHE WAS A COLLEGE STUDENT. SHE IDENTIFIED A MAN NAMED RONALD COTTON AS HER RAPIST. HE WAS CONVICTED AND SENT TO PRISON AND SERVED A VERY LONG TIME UNTIL DNA REVEALED NOT ONLY THAT HE WAS INNOCENT BUT THAT THE REAL GUY, BOBBY POOLE, IS THE ONE WHO ACTUALLY DID IT. AND INTERESTINGLY, AFTER JENNIFER HAD PICKED OUT RONALD COTTON AND WAS SURE THAT THAT WAS HIM, BECAUSE BOBBY POOLE WAS NOT IN THE LINEUP, LATER ON WHEN SHE SAW BOBBY POOLE SHE DIDN'T RECOGNIZE HIM. SHE SAID "NO, THAT'S NOT MY RAPIST". BUT ULTIMATELY DNA PROVED THAT IT WAS. SO I GOT INTERVIEWED FOR THIS PROGRAM. WHY DOES THIS HAPPEN? HOW CAN WE EXPLAIN THIS? AND THE INTERVIEWER WAS LESLIE STAHL, ONE OF THE ANCHORS FOR 60 MINUTES, AND I GAVE HER THIS TEST THAT I TOOK YOU THROUGH AND SHE LOOKED AT THAT PAIR OF FACES FOR THE LONGEST TIME AND FINALLY SHE SAID "I'M JUST BAFFLED" AND ENDED UP PICKING, AS MANY OF YOU DID, THE WRONG FACE. SHE STUCK WITH THE FACE THAT SHE WAS INDUCED TO PICK BECAUSE THE REAL GUY WASN'T THERE. AND THAT'S WHAT HAPPENS IN ALL OF THESE LINEUPS WHERE THERE'S A WRONGFUL CONVICTION. THE REAL GUY WASN'T THERE. AND I WANT TO SHOW YOU A RECENT EXAMPLE THAT REVEALS THAT THE SAME KIND OF THING WHERE WE CAN INDUCE PEOPLE TO PICK THE WRONG PERSON AND THEY'LL STICK WITH THAT PICK CAN BE SHOWN TO HAPPEN EVEN WITH EDUCATED, TRAINED INDIVIDUALS. WE'VE GOT A PROGRAM IN THE UNITED STATES WHERE WE TRAIN OUR MILITARY THROUGH SOMETHING CALLED SURVIVAL SCHOOL, TO BE ABLE TO SURVIVE AND TO KNOW WHAT TO EXPECT IF THEY ARE EVER CAPTURED AS PRISONERS OF WAR. THE PROGRAM HAS BEEN STUDIED BY A PSYCHIATRIST NAMED CHARLES MORGAN AND HE'S DONE SEVERAL STUDIES OF THESE SOLDIERS WHO HAVE GONE THROUGH THIS VERY STRESSFUL SURVIVAL SCHOOL THAT I'M GOING TO TELL YOU A LITTLE BIT ABOUT. WELL, I HAD A CHANCE TO WORK WITH MORGAN, HIS FRIENDS CALL HIM ANDY, AND TO CONVINCE HIM TO INTRODUCE SOME MISINFORMATION IN ONE OF THE SURVIVAL SCHOOL STUDIES, AND THAT'S THE BIT I WANT TO TELL YOU ABOUT. NOW IN SURVIVAL SCHOOL WHAT THESE SOLDIERS ARE LEARNING, THE TECHNICAL NAME IS CALLED "SERE" FOR SURVIVE, EVADE, RESIST, AND ESCAPE. WHAT HAPPENS THESE SOLDIERS ARE LEARNING HOW TO EVADE THE ENEMY, THEY'RE LEARNING HOW TO ESCAPE IF THEY'RE HUNTED DOWN. THEY DO GET HUNTED DOWN AND THEY DO GET CAPTURED AND THEN THEY'RE IMPRISONED - WELL, THEY AREN'T ACTUALLY TORTURED BUT THEY'RE TREATED VERY SHABBILY, LET'S PUT IT THAT WAY. THEY ALSO ARE THEN PUT INTO THIS MOCK PRISONER OF WAR CAMP SO THEY GET TO EXPERIENCE WHAT THAT'S GOING TO BE LIKE SHOULD IT EVER HAPPEN TO THEM. THEY'RE HOODED, THEY'RE STRAPPED TOGETHER, THEY'RE STRIPPED OF THEIR IDENTITIES, THEY HAVE THIRD WORLD TOILETS WITH NO TOILET PAPER THAT THEY HAVE TO ENDURE. AND THEY'RE EXTRACTED BY HELICOPTER, WHICH IS WHAT WOULD HAPPEN TO THEM IF THE HELICOPTER CAN'T LAND BECAUSE THE JUNGLE'S TOO DENSE AND SO ON. WHEN THIS EXPERIENCE IS OVER THEY'RE RESCUED AND THERE'S A TREMENDOUS EMOTIONAL RELIEF WHEN THEY GO THROUGH THIS RESCUE EXPERIENCE. THIS IS VERY STRESSFUL. SO IF YOU LOOK AT THAT PURPLE-RED BAR YOU SEE THE CORTISOL LEVELS OF STRESS HORMONE. THEY'RE VERY HIGH. THEY'RE HIGHER FOR THIS EXPERIENCE FOR THESE INDIVIDUALS THAN, FOR EXAMPLE, SKYDIVING FOR THE FIRST TIME AND OTHER KINDS OF NATURAL SITUATIONS THAT PEOPLE SOMETIMES FIND THEMSELVES IN THAT ARE VERY, VERY STRESSFUL. SO IN THE MISINFORMATION STUDY THAT WE'VE JUST COMPLETED AND WE'RE IN THE PROCESS OF WRITING UP, WHAT HAPPENS IS THAT THESE SOLDIERS ARE GOING THROUGH THE CLASSROOM INSTRUCTION, THEY'RE GOING THROUGH THIS EVASION EXPERIENCE WHERE THEY'RE BEING HUNTED DOWN AND THEY HAVE TO TRY TO AVOID BEING CAPTURED. THEY THEN DO GET CAPTURED AND THEY GO THROUGH THIS VERY STRESSFUL INTERROGATION THAT LASTS FOR A HALF HOUR AND ABOUT AN HOUR AFTER THAT SOME OF THEM GET MISINFORMATION. HOW DOES THE MISINFORMATION GET INTRODUCED? A NEW INTERROGATOR SAYS "LOOK AT THIS PHOTO OF THE PERSON WHO WAS INTERROGATING YOU DURING THAT EXTREMELY STRESSFUL INTERROGATION. DID HE GIVE YOU ANYTHING TO EAT? DID HE GIVE YOU A BLANKET? DID HE LET YOU SPEAK TO ANYBODY ELSE? BUT THE PERSON IN THE PHOTOGRAPH IS THE WRONG PERSON. AND SO HERE'S AN EXAMPLE OF A REAL PERPETRATOR, THE ONE WHO ACTUALLY DID CONDUCT THE INTERROGATION, AND THERE'S AN EXAMPLE OF A FOIL. THEY DON'T EVEN NEED TO LOOK VERY SIMILAR TO EACH OTHER. AND THEN WHAT HAPPENED IN THIS STUDY IS THE SUBJECTS WERE GIVEN A SET OF PHOTOS. THEY HAD TO TRY TO PICK THE INTERROGATOR OUT. IT'S WHAT WE CALL A "TARGET ABSENT ARRAY". THE REAL GUY ISN'T THERE BUT THE FOIL IS, AND YOU CAN SEE WHAT THESE SOLDIERS DID. CONTROL SOLDIERS WHO DID NOT GET ANY MISINFORMATION PHOTOGRAPH ARE WRONGLY PICKING SOMEBODY OUT ABOUT HALF THE TIME. SO THE REAL GUY ISN'T THERE AND THEY'RE MAKING A FALSE IDENTIFICATION BY PICKING SOMEBODY ABOUT HALF THE TIME. BUT LOOK WHAT HAPPENS IN THE MISINFORMATION CONDITION. 91% OF THE TIME THOSE SOLDIERS PICKED OUT A PERSON AND SAID "THAT'S THE ONE WHO INTERROGATED ME" AND THE ONE THEY ARE ALMOST ALWAYS PICKING OUT IS THE FOIL WHO'S FACE WAS SHOWN IN THE PHOTOGRAPH. SO HERE YOU SEE MISINFORMATION HAVING A POWERFUL EFFECT IN A SOMEWHAT NATURALLY STRESSFUL CIRCUMSTANCE AND LEADING AFTER A FAIRLY SHORT PERIOD OF TIME TO A WRONGFUL CONVICTION. SO THAT'S JUST A RECENT EXAMPLE OF A MISINFORMATION STUDY. THESE MISINFORMATION STUDIES ARE STILL POPULAR. PEOPLE ARE LEARNING NEW THINGS ABOUT THE POWER OF MISINFORMATION TO CHANGE YOUR MEMORY FOR THE DETAILS OF AN EVENT THAT ACTUALLY DID HAPPEN. BUT WHEN I STARTED TO GET INVOLVED IN THESE REPRESSED MEMORY CASES LIKE THE ONE INVOLVING THE RAMONA FAMILY WHERE THE DAUGHTER IS SAYING "I WAS RAPED FOR 11 YEARS AND FORCED INTO BESTIALITY", ALLEGEDLY REPRESSING ALL THESE MEMORIES UNTIL SHE WENT INTO THERAPY AND SOMEHOW THE THERAPY MADE HER BELIEVE THAT THESE THINGS HAPPENED TO HER. A NEW QUESTION AROSE. I MEAN, CAN YOU AT LEAST SHOW US THAT YOU CAN DO MORE THAN TURN A STOP SIGN INTO A YIELD SIGN? OR CHANGE THE FACE THAT SOMEBODY RECOGNIZES WHEN THEY ACTUALLY HAVE EXPERIENCED AN EVENT? I MEAN, SHOW US THAT YOU CAN CREATE AN ENTIRELY FALSE MEMORY FOR THINGS THAT NEVER HAPPENED. ALRIGHT, THERE'S A CHALLENGE. HOW ARE YOU GOING TO DO THIS? WE'RE NOT GOING TO BE ABLE TO DO STUDIES IN WHICH WE BRING SUBJECTS IN AND TRY TO CONVINCE THEM THAT DADDY RAPED THEM AND FORCED THEM INTO BESTIALITY. WHY? BECAUSE WE HAVE HUMAN SUBJECTS REVIEW COMMITTEES ON COLLEGE AND UNIVERSITY CAMPUSES THAT REVIEW THE PROPOSED RESEARCH AND IF IT LOOKS LIKE IT MIGHT BE HARMFUL TO SUBJECTS THEY'RE NOT GOING TO LET YOU DO IT. SO WE NEEDED SOME SORT OF AN ANALOGUE. WHAT COULD WE DO, WHAT KIND OF A MEMORY COULD WE PLANT IN THE MINDS OF PEOPLE THAT WE COULD GET THROUGH THE HUMAN SUBJECTS COMMITTEE, WOULDN'T BE SO HORRIBLE FOR SUBJECTS, BUT WOULD AT LEAST HAVE BEEN MILDLY TRAUMATIC IF THE EVENT ACTUALLY DID HAPPEN. AND EVENTUALLY AFTER LONG DISCUSSIONS WITH MY GRADUATE STUDENTS AND OTHERS WE CAME UP WITH THE IDEA WHY DON'T WE TRY TO MAKE PEOPLE BELIEVE THAT WHEN THEY WERE A KID OF ABOUT FIVE OR SIX YEARS OLD THEY WERE LOST IN A SHOPPING MALL. THEY WERE FRIGHTENED AND CRYING FOR AN EXTENDED TIME. THEY WERE ULTIMATELY RESCUED BY AN ELDERLY PERSON AND REUNITED WITH THE FAMILY. WELL, THAT WAS OUR PLAN BUT HOW WERE WE GOING TO DO IT? HOW ARE WE GOING TO GET PEOPLE TO DEVELOP A FALSE MEMORY LIKE THAT? THE TECHNIQUE WE CAME UP WITH WAS TO TELL OUR SUBJECTS WE'VE TALKED TO YOUR MOTHER, OR YOUR FATHER, OR YOUR OLDER BROTHER, AND WE FOUND OUT SOME THINGS THAT HAPPENED TO YOU WHEN YOU WERE ABOUT FIVE OR SIX YEARS OLD. NOW WE REALLY DID TALK TO THE RELATIVE AND WE REALLY GOT FROM THE RELATIVE SOME EXAMPLES OF SOME TRUE THINGS THAT DID HAPPEN TO THE SUBJECT WHEN THE SUBJECT WAS A YOUNG CHILD, SO WE PRESENTED THOSE EXAMPLES TO OUR SUBJECTS AND THEN THE MADE UP EXAMPLE ABOUT YOU WERE WITH THE FAMILY, YOU WERE SHOPPING IN THIS SHOPPING MALL - OR OTHER BIG PUBLIC STORE IF THERE WERE NO SHOPPING MALLS IN THAT NEIGHBORHOOD, AND WE PLIED OUR SUBJECTS WITH THIS SUGGESTIVE INTERVIEWING. WE INTERVIEWED THEM THREE TIMES OVER THE COURSE OF TWO WEEKS AND BY THE TIME WE WERE DONE, A QUARTER OF OUR SUBJECTS, ORDINARY PEOPLE, FELT SWAYED AT THE SUGGESTIVE INTERVIEWING AND BEGAN TO REMEMBER ALL OR PART OF THIS MADE UP EXPERIENCE ABOUT BEING LOST IN THE MALL AND FRIGHTENED, CRYING, RESCUED AND REUNITED WITH THE FAMILY. SO THAT WAS OUR FIRST CLUE THAT YOU COULD PLANT A RICH FALSE MEMORY, A DETAILED MEMORY OF SOMETHING THAT DIDN'T HAPPEN. BUT OUR WORK WAS CRITICIZED, AND THE FIRST THING WE HEARD FROM PEOPLE WAS, YOU KNOW, GETTING LOST IS REALLY COMMON. MAYBE YOU COULD TRY TO SHOW THAT YOU COULD PLANT A MEMORY OF SOMETHING THAT WOULD BE A LITTLE BIT MORE BIZARRE OR UNUSUAL THAN GETTING LOST, WHICH IS COMMON. AND THAT'S WHAT I THINK YOU NEED TO SHOW IF YOU WANT TO BE APPLYING THESE IDEAS TO THESE CASES, THE REPRESSED MEMORY ACCUSATION CASES WHERE THESE STORIES COME OUT AFTER SUGGESTIVE PSYCHOTHERAPY. WELL, OTHER INVESTIGATORS CAME ALONG - AND THIS IS THE ONE NICE THING, WHEN PEOPLE TAKE AN INTEREST IN YOUR WORK THEY OFTEN WANT TO EITHER REPLICATE IT OR PARTICULARLY EXTEND IT. THEY'LL DO NEW STUDIES, YOU GET TO LEARN ABOUT SOMETHING YOU CARE ABOUT, SOMEBODY ELSE IS DOING ALL THE WORK AND HELPING YOU FIND OUT. AND SO ONE INVESTIGATOR RESPONDED TO THIS CHALLENGE AND PLANTED FALSE MEMORIES USING THAT SAME TECHNIQUE - WE TALKED TO YOUR MOTHER OR FATHER OR OLDER SIBLING. WE FOUND OUT SOME THINGS THAT HAPPENED TO YOU

- PLANTED THE FALSE MEMORY: WHEN YOU WERE A KID YOU WENT TO A FAMILY WEDDING AND YOU WERE PLAYING BY THE TABLE OVER THERE WITH A PUNCH BOWL ON IT AND YOU ACCIDENTALLY KNOCKED INTO THAT TABLE AND YOU SPILLED PUNCH ALL OVER THE PARENTS OF THE BRIDE. REMEMBER THAT? WELL, BY THE TIME PROFESSOR HYMAN WAS DONE WITH A COUPLE OF SUGGESTIVE INTERVIEWS A QUARTER OF HIS NORMAL, ORDINARY ADULTS HAD FALLEN FOR THE SUGGESTIVE INTERVIEWING AND BEGAN TO REMEMBER ALL OR PART OF THIS MADE UP EXPERIENCE ABOUT THE ACCIDENT AT THE FAMILY WEDDING. AN EXCELLENT BIT OF WORK FROM THE UNIVERSITY OF BRITISH COLUMBIA WHERE DR. STEVEN PORTER, THIS WAS HIS DOCTORAL DISSERTATION WORK, CONVINCED HIS SUBJECTS THAT THEY HAD AS A CHILD A SERIOUS INDOOR ACCIDENT OR OUTDOOR ACCIDENT OR THEY'D BEEN A VICTIM OF A VICIOUS ANIMAL ATTACK. HE SUCCEEDED IN GETTING - YOU CAN SEE HOW GOOD PEOPLE ARE GETTING AT DOING THIS

- IN GETTING 26% OF HIS SUBJECTS TO HAVE A COMPLETE FALSE MEMORY AND AN ADDITIONAL 30% TO HAVE A PARTIAL FALSE MEMORY OF THESE MADE UP EXPERIENCES. WELL, I THINK YOU CAN SEE THAT THESE ARE FAIRLY STRONG FORMS OF SUGGESTION. IF YOU SAY TO A SUBJECT "I TALKED TO YOUR MOTHER AND YOUR MOTHER TOLD US SOME THINGS THAT HAPPENED TO YOU WHEN YOU WERE FIVE OR SIX YEARS OLD, WE WANT TO SEE WHAT YOU CAN REMEMBER AND HOW YOUR MEMORIES COMPARE TO YOUR MOTHER'S. SAY YOU CAN'T REMEMBER IF YOU CAN'T". STILL, IT'S A PRETTY STRONG SUGGESTION. "YOUR MOTHER SAID IT." MAYBE WITH LESS STRONG SUGGESTION YOU WOULDN'T GET THESE SAME EFFECTS, AND OF COURSE THE PSYCHOTHERAPISTS WOULD ARGUE THAT "WE AREN'T DOING ANYTHING LIKE THAT IN PSYCHOTHERAPY". BUT MY RESPONSE TO THAT IS, YOU MAY NOT BE SAYING TO YOUR PATIENTS 'I WAS THERE, I SAW IT HAPPEN', BUT SOME OF THE PSYCHOTHERAPISTS WERE DOING THINGS THAT WERE MAYBE MORE MODESTLY SUGGESTIVE AND PERHAPS EVEN MORE INSIDIOUS FOR THAT REASON. THEY WERE DOING THINGS LIKE GUIDED IMAGINATION AND ADMITTING THAT THEY DID IT. AND SO IT GOES SOMETHING LIKE THIS: "YOU'VE GOT BULIMIA, YOU ARE DEPRESSED". THE THERAPIST SAYS "80% OF PEOPLE I'VE SEEN WITH YOUR SYMPTOMS WERE SEXUALLY ABUSED AS A CHILD. I THINK SOMETHING LIKE THAT MAY HAVE HAPPENED TO YOU". THE PATIENT SAYS "I DON'T REMEMBER ANYTHING LIKE THAT". THE THERAPIST SAYS "MANY PEOPLE DON'T REMEMBER, WHY DON'T YOU CLOSE YOUR EYES AND TRY TO IMAGINE WHO MIGHT HAVE DONE IT. IMAGINE HOW OLD YOU MIGHT HAVE BEEN". WELL, WE ASK WHAT WOULD THAT GUIDED IMAGINATION DO TO A PERSON WHO DIDN'T HAVE THE EXPERIENCE? AND NOW A NUMBER OF STUDIES HAVE BEEN DONE - NOT ONLY BY US, BUT MANY OTHERS - ARE SHOWING THAT THIS GUIDED IMAGINATION CAN LEAD PEOPLE TO BELIEVE THAT THEY HAD EXPERIENCES THAT THEY DIDN'T HAVE BUT THEY ONLY IMAGINED. DREAM INTERPRETATION... THERE'S ANOTHER ONE. IF YOU'VE EVER BEEN IN THERAPY YOU MAY KNOW THAT PEOPLE SOMETIMES TALK ABOUT THEIR DREAMS. AND THERE'S REALLY NOTHING WRONG WITH DOING THAT AS LONG AS PEOPLE RECOGNIZE THAT DREAM MATERIAL, YOU KNOW, WHAT YOU'RE WORRYING ABOUT DURING THE DAY CAN GET INTO YOUR DREAMS AT NIGHT. SO IF YOU'RE WORRYING ABOUT SOME PARTICULAR EXAM YOU MAY END UP DREAMING THAT YOU'VE SLEPT THROUGH THE ALARM AND MISSED THE EXAM. THERE'S NOTHING WRONG WITH TALKING ABOUT WHAT YOU'RE DREAMING ABOUT. THE PROBLEM COMES IN WITH THE THERAPISTS WHO TAKE THE DREAM MATERIAL AND INTERPRET IT TO MEAN SOMETHING THAT THEY HAVE NO BUSINESS INTERPRETING IT TO MEAN. AND SO WHAT I'M TALKING ABOUT HERE IS, SHE DREAMS ABOUT A SNAKE, THE THERAPIST SAYS "THAT'S A PENIS". SHE DREAMS ABOUT A SERPENT, HE SAYS "THAT'S A PENIS". I HAD A CASE IN THE STATE OF WASHINGTON, A COURT CASE, WHERE THE PATIENT DREAMT ABOUT A CINNAMON ROLL AND THE THERAPIST SAID "THAT'S A PENIS". AND I DIDN'T REALLY UNDERSTAND THIS AND WE HAD TO HAVE THE LAWYER CROSS EXAMINE THE THERAPIST TO FIND OUT WHY EXACTLY DID YOU THINK THAT WAS A PENIS? AND FOR THE THERAPIST IT WAS THE GOO ON THE CINNAMON ROLL THAT LED HER TO THIS CONCLUSION. I'M SORRY, I KNOW YOU'LL NEVER THINK OF CINNAMON ROLLS IN QUITE THE SAME WAY ANYMORE, BUT THAT ACTUALLY HAPPENED. HYPNOSIS... HYPNOSIS IS ANOTHER WAY TO GET PEOPLE TO HAVE FALSE MEMORIES AND FALSE BELIEFS ABOUT A LOT OF THINGS. AND IT WAS VERY INTERESTING FOR ME TO READ ABOUT THE AMOUNT OF HYPNOSIS THAT CHRIS SIZEMORE UNDERWENT IN HER PSYCHOTHERAPY. SO I JUST LEAVE IT TO YOU TO THINK ABOUT WHAT EFFECTS THAT THIS MIGHT HAVE HAD, OR WHAT DIFFERENCE IT MIGHT MAKE IN TERMS OF HOW WE THINK ABOUT THOSE EXPERIENCES. BEING EXPOSED TO OTHER PEOPLES' VERSIONS AND STORIES, THAT CAN LEAD YOU TO THINK THAT SOMETHING LIKE THAT HAPPENED TO YOU AND SEND YOU ON THE ROAD TO A FALSE MEMORY. BEING PLIED WITH FALSE INFORMATION, I'M GOING TO SHOW YOU SOME EXAMPLES OF THAT

- BEING SHOWN DOCTORED PHOTOGRAPHS - THESE ARE ALL WAYS THAT WE CAN GET PEOPLE TO BELIEVE AND REMEMBER THAT THEY HAD EXPERIENCES THAT THEY DIDN'T ACTUALLY HAVE. WELL, MY CRITICS ARE BACK IN FULL FORCE AND THEY SAY, YOU KNOW, MAYBE THESE THINGS REALLY HAPPENED. MAYBE THE PERSON REALLY WAS LOST AND THE PARENT FORGOT ABOUT IT. MAYBE THE PERSON REALLY DID GET BITTEN BY A VICIOUS ANIMAL AND THE PARENT WAS JUST UNAWARE OF IT. MAYBE YOUR SUGGESTIVE INTERVIEWING EXTRACTED A TRUE MEMORY RATHER THAN PLANTING A FALSE ONE. THAT'S A LEGITIMATE COMMENT, AND OUR RESPONSE TO THAT WAS TO SAY, OKAY, LET'S TRY TO PLANT MEMORIES FOR THINGS THAT WOULD BE PRETTY IMPLAUSIBLE OR EVEN IMPOSSIBLE. AND IN THAT VEIN MY GRADUATE STUDENT SHERI BERKOWITZ AND OUR OTHER COLLABORATORS CONVINCED SUBJECTS THAT WHEN THEY WERE A KID ON A CHILDHOOD TRIP TO DISNEY THEY HAD THEIR EAR PERSISTENTLY, DISTURBINGLY, UNCOMFORTABLY LICKED BY THE PLUTO CHARACTER. IT'S NOT HARD TO DO THAT. SOMETHING I THINK WOULD BE RATHER IMPLAUSIBLE BUT SINCE IT WASN'T IMPOSSIBLE THE CRITICS SAID MAYBE IT REALLY HAPPENED. AND SO WE NEEDED SOMETHING THAT WAS IMPOSSIBLE AND THAT WAS THE GENESIS OF OUR STUDY IN WHICH WE TRIED TO MAKE PEOPLE BELIEVE THAT ON A CHILDHOOD TRIP TO DISNEY THEY HAD MET BUGS BUNNY AND EVEN SHAKEN HIS HAND. HOW DID WE DO IT? IN THIS PARTICULAR STUDY WE CREATED A FAKE AD FOR DISNEY, SO YOU SEE BUGS BY THE CASTLE AND THERE'S A LOT OF TEXT THERE. OUR SUBJECTS ARE JUST READING THE AD, THEY HAVE TO EVALUATE THE AD - DO YOU LIKE THE COLORS? DO YOU LIKE THE LAYOUT? THE TEXT OF IT TALKS ABOUT HOW THE HIGHLIGHT OF YOUR TRIP WAS SEEING BUGS BUNNY, HE WAVED YOU OVER, HE SHOOK YOUR HAND, HE'S YOUR HERO

- THE PERFECT END TO THE PERFECT DAY. AFTER EVALUATING THESE ADS, SOMETIME LATER OUR SUBJECTS WERE ASKED ABOUT THEIR OWN EXPERIENCE AT DISNEY: WHICH CHARACTERS DO YOU REMEMBER MEETING? DO YOU REMEMBER MEETING MICKEY MOUSE? DO YOU REMEMBER MEETING MINNIE? DO YOU REMEMBER MEETING THE LITTLE MERMAID? DO YOU REMEMBER MEETING BUGS? AND IN SOME OF THIS WORK MANY OF OUR SUBJECTS CLAIMED THAT THEY'D MET BUGS BUNNY AND WHEN THEY DID THEY PROVIDED DETAILS ABOUT THAT MEETING. THEY SHOOK HIS HAND, THEY TOUCHED HIS TAIL, THEY TOUCHED HIS EAR, THEY HEARD HIM SAY "WHAT'S UP, DOC?" ONE OF THEM SAID HE WAS HOLDING A CARROT. ALL THAT SENSORY DETAIL - WHY IS THAT IMPORTANT? IT'S IMPORTANT BECAUSE WE USE SENSORY DETAIL TO DECIDE IF OUR OWN SUBJECTIVE EXPERIENCE IS A PRODUCT OF A REAL MEMORY OR SOME OTHER PROCESS

- AN IMAGINATION, A DREAM OR SOMETHING ELSE. AND WHEN WE HEAR STORIES FROM OTHER PEOPLE - WHICH WE DO WHEN WE ARE JURORS OR JUDGES, WHEN WE ARE PSYCHOTHERAPISTS, OR WHEN WE'RE A FRIEND JUST LISTENING TO THE STORY OF A FRIEND - WE USE SENSORY DETAIL AS A CLUE THAT WE'RE HEARING AN AUTHENTIC STORY. SO WHAT THIS WORK IS SHOWING IS THAT EVEN THESE FALSE MEMORIES, THESE IMPOSSIBLE FALSE MEMORIES, CAN CONTAIN A LOT OF SENSORY DETAIL. SINCE MOVING TO THE UNIVERSITY OF CALIFORNIA, THE IRVINE CAMPUS WHERE I NOW TEACH, I'VE BECOME INTERESTED IN THE CONSEQUENCES OF HAVING A FALSE MEMORY. NOW I KNOW OUT THERE IN THE REAL WORLD CASES PEOPLE DO THINGS BASED ON FALSE MEMORIES, MEMORIES THAT ARE PROBABLY FALSE, SO HOLLY RAMONA STOPS SPEAKING TO HER FATHER, STARTS PUBLICLY ACCUSING HIM, AND THEN SUES HIM FOR THIS ABUSE. THAT IS AN EXAMPLE OF HOW THE RECOLLECTION IS LEADING TO ACTUAL CHANGES IN HER BEHAVIOR. BUT WE WANTED TO SEE IF WE COULD DEMONSTRATE THIS EXPERIMENTALLY TO SHOW THAT FALSE MEMORIES CAN HAVE REPERCUSSIONS, THEY CAN AFFECT FUTURE BEHAVIORS, INTENTIONS, OR THOUGHTS. AND ONE WAY WE CAME UP WITH TO STUDY THIS IS WHY DON'T WE SEE IF WE CAN PLANT A FALSE MEMORY THAT WHEN YOU WERE A KID YOU GOT SICK EATING A PARTICULAR FOOD? LIKE YOU GOT SICK EATING HARD BOILED EGGS OR YOU GOT SICK EATING DILL PICKLES AND WE'LL SEE IF THEY NOW SHOW AVOIDANCE OF THOSE FOODS IF WE CAN CREATE THIS GETTING SICK MEMORY. HOW DID WE DO IT? AND THIS IS AN EXAMPLE OF PLYING PEOPLE WITH FALSE FEEDBACK WHICH IS ANOTHER COMMON WAY YOU CAN GET PEOPLE TO DEVELOP FALSE MEMORIES. SO WE GATHER DATA FROM OUR SUBJECTS, LOTS OF DATA ABOUT THEIR INTEREST IN FOOD, THEIR HISTORY WITH FOOD, THEIR PERSONALITY AND SO ON. A WEEK LATER THEY COME BACK TO THE LAB AND THEY'RE GOING TO GET A SUGGESTION - WE FED ALL YOUR DATA INTO OUR REALLY SMART COMPUTER PROGRAM, THE COMPUTER HAS REVEALED THAT CERTAIN THINGS HAPPENED TO YOU WHEN YOU WERE A CHILD. HERE'S THE PROFILE FOR JOHNNY JONES. YOU CAN SEE THAT THE COMPUTER HAS DETERMINED THAT

- LOOK AT THE THIRD ITEM, IT'S ITALICIZED FOR YOU BUT NOT FOR THE SUBJECT - "YOU FELT SICK AFTER EATING HARD-BOILED EGGS". IT'S EMBEDDED IN A LIST WITH SOME OTHER ITEMS THAT WE THINK ARE TRUE OF MANY KIDS JUST TO GIVE THE PROFILE AND THE FEEDBACK SOME CREDIBILITY. LIKE YOU DISLIKED SPINACH AS A KID. WE GET PEOPLE TO PROCESS THIS INFORMATION, TO THINK ABOUT IT, TO DWELL A LITTLE BIT ON THE GETTING SICK ASPECTS, AND THEN WE ASK THEM TO IMAGINE THEY'RE AT A PARTY. IT'S AN AFTERNOON SWIM, THEY'VE GONE FOR THE SWIM, THEY'RE NOW HUNGRY. THERE'S A GREAT BIG TABLE WITH LOTS OF THINGS THEY CAN CHOOSE TO EAT. HOW LIKELY ARE YOU TO EAT OR TO PICK UP AND NIBBLE OR EAT EACH OF THESE FOODS? EMBEDDED IN THE LIST ARE OUR TWO CRITICAL ITEMS OF SALTED HARD-BOILED EGGS AND DILL PICKLE SPEARS BECAUSE SOME OF THEM RECEIVED THE SUGGESTION ABOUT THE EGGS AND SOME RECEIVED THE SUGGESTION ABOUT PICKLES. HERE'S WHAT HAPPENED. HERE'S HOW MUCH PEOPLE WANT TO EAT THE TWO FOODS WHEN THEY DIDN'T GET ANY FALSE FEEDBACK AT ALL. A LITTLE MORE INTERESTED IN HAVING THE HARD-BOILED EGG THAN THE DILL PICKLES. HERE'S HOW MUCH PEOPLE WANT TO EAT THE FOODS IF THEY WERE EXPOSED TO OUR MANIPULATION BUT THEY DIDN'T BUY INTO IT, THEY DIDN'T DEVELOP A FALSE MEMORY OR A FALSE BELIEF THAT THEY HAD THIS EXPERIENCE. AND HERE'S HOW MUCH PEOPLE WANT TO EAT THE FOODS IF THEY WERE EXPOSED TO THE SUGGESTIVE MANIPULATION AND THEY FELL FOR IT. THEY DON'T WANT TO EAT THOSE FOODS AS MUCH. THIS WAS A PRETTY EXCITING RESULT FOR ME BECAUSE, YOU KNOW, ONE OF THE GREAT MOMENTS IS WHEN GRADUATE STUDENTS COME IN WITH THE ANALYSES OF THE DATA AFTER ALL THE SUBJECTS ARE RUN, YOU'VE PROBABLY BEEN PARTICIPATING IN THESE EXPERIMENTS AS SUBJECTS AND SERVING A VALUABLE SERVICE TO THE FIELD OF PSYCHOLOGY IN DOING SO - HOPEFULLY IT'S A LEARNING EXPERIENCE FOR YOU. BUT WHEN THE GRAD STUDENTS BROUGHT ME THESE DATA I THOUGHT, "GEE, THIS IS FANTASTIC. WE'RE GETTING PEOPLE TO SAY THEY WOULD AVOID THESE FOODS AFTER THE SUGGESTIVE MANIPULATION. IF WE COULD DO THIS WITH A FATTENING FOOD... THINK ABOUT IT. WE COULD BE ON THE BRINK OF A NEW DIETING TECHNIQUE. AND SO AFTER SHOWING THAT IT WAS POSSIBLE TO PLANT A FALSE MEMORY THAT YOU GOT SICK ON A PARTICULAR FOOD AND IT HAD THESE CONSEQUENCES, WE TRIED IT WITH A FATTENING FOOD: STRAWBERRY ICE CREAM. SAME KIND OF METHODOLOGY - GETTING DATA FROM SUBJECTS, A WEEK LATER THEY COME BACK, A REALLY SMART COMPUTER HAS DETERMINED THAT CERTAIN THINGS HAPPENED TO YOU AS A CHILD. THEY GET THIS INDIVIDUALLY TAILORED PROFILE

- THEY THINK IT'S TAILORED TO THEM BUT OF COURSE MANY OTHER PEOPLE ARE GETTING THE SAME ONE. THE CRITICAL ITEM, "YOU FELT ILL AFTER EATING STRAWBERRY ICE CREAM". WE GET YOU TO ELABORATE ON THIS EXPERIENCE, TELLING US A LITTLE BIT ABOUT WHO YOU WOULD HAVE BEEN WITH, HOW IT WOULD HAVE HAPPENED IF YOU REMEMBER IT OR MIGHT HAVE HAPPENED IF YOU CAN'T QUITE REMEMBER IT, HOW IT WOULD HAVE MADE YOU FEEL. AND THEN LATER ON PEOPLE HAVE A CHANCE TO TELL US WHAT THEY WANT TO EAT AND WE LOOK TO SEE HOW MUCH THEY WANT TO EAT STRAWBERRY ICE CREAM. HERE'S HOW MUCH PEOPLE WANT TO EAT STRAWBERRY ICE CREAM IF THEY HAVEN'T GOTTEN ANY FALSE FEEDBACK. HERE'S HOW MUCH THEY WANT TO EAT IT IF THEY WERE EXPOSED TO THE MANIPULATION AND THEY DIDN'T FALL FOR IT. AND HERE'S HOW MUCH THEY WANT TO EAT IT IF THEY WERE EXPOSED TO THAT MANIPULATION AND THEY FELL FOR IT. THEY DON'T WANT TO EAT IT AS MUCH. NOW I WAS QUITE EXCITED ABOUT THIS RESULT, IN FACT WE MANAGED TO PUBLISH IT IN THE PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES WHICH IS A PRETTY IMPORTANT JOURNAL BECAUSE IT IS THE JOURNAL OF THE UNITED STATES NATIONAL ACADEMY OF SCIENCES. AND FROM THERE IT GOT A LOT OF ATTENTION. MAYBE BECAUSE IT WAS A FATTENING FOOD AND WE HAD SHOWN THAT WE COULD GET PEOPLE TO TELL US THEY DIDN'T WANT TO EAT THIS FOOD AS MUCH. BUT ONE OF THE THINGS THAT HAPPENED IS OUR WEEKLY NEWS MAGAZINE, TIME MAGAZINE, DEVOTED AN ENTIRE PAGE TO THE MENTAL DIET DESCRIBING THIS PARTICULAR STUDY AND I WAS REALLY HAPPY TO SAY THAT THEY WERE VERY RESPONSIBLE AND PUBLISHED A CAVEAT AFTER AN INTERVIEW BECAUSE I SAID TO THEM, YOU KNOW, BEFORE PEOPLE GET TOO EXCITED ABOUT THIS, WE NEED TO LEARN A LITTLE BIT ABOUT WHETHER THESE EFFECTS ARE EVEN GOING TO LAST. WE CAN SHOW THAT PEOPLE TELL US THEY WANT TO AVOID THE FOOD SHORTLY AFTER THEY'VE GOTTEN THE SUGGESTION, BUT IF THIS IS REALLY GOING TO WORK AS A DIETING TECHNIQUE WE NEED TO SHOW THAT THESE EFFECTS LAST AND WE HADN'T YET SHOWN THAT. THE NEW YORK TIMES MAGAZINE AT THE END OF THE YEAR PUBLISHED THE 78 MOST INNOVATIVE SCIENTIFIC IDEAS OF THE YEAR THAT THEY HAD HEARD OF AND THERE WAS THE FALSE MEMORY DIET THAT WAS REALLY EXCITING FOR US TOO. AND THEY TOO PUBLISHED TWO CAVEATS - WE DON'T KNOW HOW LONG THESE EFFECTS ARE GOING TO LAST AND WE ALSO DON'T KNOW WHETHER OR NOT THE MANIPULATION IS GOING TO BE STRONG ENOUGH THAT THE INDIVIDUAL WILL BE ABLE TO WITHSTAND AND AVOID THE FOOD IF YOU PUT AN ACTUAL BOWL OF STRAWBERRY ICE CREAM RIGHT IN FRONT OF THEM. WE DIDN'T KNOW THEN, BUT WE DO NOW. BECAUSE OF SOME WORK OF MY COLLABORATORS - DAN BERNSTEIN IN THE MIDDLE THERE, MY LONGTIME COLLABORATOR ON ALL THESE FOOD STUDIES

- ALSO WITH KARA LAINIE, MY FORMER GRADUATE STUDENT WHO IS NOW TEACHING AT THE UNIVERSITY OF LEICESTER, AND ELKA GERAERTS WHO DID THIS STUDY IN THE NETHERLANDS ON HOW LONG WILL THESE EFFECTS LAST. AND BASICALLY THE BOTTOM LINE IS THAT USING EGG SALAD SANDWICHES

- I'M GOING TO ZIP THROUGH THIS BECAUSE YOU ALREADY KNOW THE METHODOLOGY

- FALSE FEEDBACK FROM PEOPLE - DATA FROM SUBJECTS, THEY COME BACK A WEEK LATER, THE REALLY SMART COMPUTER TELLS US THESE THINGS HAPPENED TO YOU. YOU GOT SICK EATING EGG SALAD. AND NOW THEY HAVE AN ACTUAL CHANCE TO EAT SANDWICHES - THEY CAN CHOOSE FROM FIVE DIFFERENT SANDWICHES THAT ARE LAID OUT BEFORE THEM - AND WE CAN SEE ARE THEY ACTUALLY EATING FEWER SANDWICHES, AND THEN FOUR MONTHS LATER THEY COME BACK TO THE LAB FOR A SEEMINGLY UNRELATED STUDY, MORE CHANCE TO EAT SANDWICHES

- HOW MANY EGG SALAD SANDWICHES DO THEY ACTUALLY EAT? I'LL JUST GET TO THE SANDWICHES EATEN, SKIPPING OVER SOME OF THIS EARLIER DATA. HERE'S HOW MANY SANDWICHES PEOPLE ATE IN SESSION #2 RIGHT AFTER THE MANIPULATION. AND THEN THE SESSION MONTHS LATER WITHOUT ANY FEEDBACK AT ALL. THEY EAT AN AVERAGE OF THAT MANY EGG SALAD SANDWICHES. HERE'S HOW MANY THEY EAT IF THEY WERE EXPOSED TO THE MANIPULATION BUT THEY DIDN'T BUY INTO IT, THEY DIDN'T DEVELOP A FALSE MEMORY. IMMEDIATELY AFTERWARDS EVEN THE MERE EXPOSURE IS AFFECTING THEM. BUT BY SEVERAL MONTHS LATER THEY'RE EATING AS MANY EGG SALAD SANDWICHES AS THE CONTROL GROUP. AND HERE'S HOW MANY EGG SALAD SANDWICHES PEOPLE EAT AFTER THEY HAVE DEVELOPED A FALSE MEMORY ABOUT GETTING SICK ON EGG SALAD. THEY DON'T EAT AS MANY RIGHT AWAY AND THEY ALSO DON'T EAT AS MANY MONTHS LATER. I ALSO WANT TO MENTION TO YOU ANOTHER STUDY DONE BY SCOBORIA, MAZZONI, AND JARRY GOING ON AT THE SAME TIME THAT TELLS A SOMEWHAT SIMILAR STORY. THEY PLANTED FALSE MEMORIES THAT YOU GOT SICK EATING PEACH YOGURT. AND THEN A WEEK LATER THEY GAVE PEOPLE A CHANCE TO EAT CERTAIN FOODS AND THEY WEIGHED THE CONTAINERS OF PEACH YOGURT TO SEE HOW MUCH WAS GONE. AND AFTER MAKING PEOPLE BELIEVE THEY GOT SICK EATING PEACH YOGURT PEOPLE DON'T EAT AS MUCH PEACH YOGURT. OF COURSE WE GOT PEOPLE TO BELIEVE THEY GOT SICK EATING A PARTICULAR FOOD, THEY AVOIDED THE FOOD, NEXT THING WE DID IN THIS PROGRAM OF RESEARCH IS TO TRY TO SEE IF WE COULD DO THE OPPOSITE. COULD WE PLANT A WARM, FUZZY MEMORY ABOUT A HEALTHY FOOD AND THEN SHOW THAT PEOPLE WOULD WANT TO EAT THAT FOOD MORE? WE DID IT WITH ASPARAGUS - THE SAME KIND OF SITUATION WHERE WE GAVE PEOPLE FALSE FEEDBACK THAT WHEN YOU WERE A KID YOU ABSOLUTELY LOVED ASPARAGUS THE FIRST TIME YOU TRIED IT. WE HAVE PEOPLE DWELL ON THIS WARM, HAPPY, FUZZY EXPERIENCE WITH ASPARAGUS, THEN THEY GO TO A RESTAURANT - WE ASK THEM TO IMAGINE THEY'RE AT A RESTAURANT FOR A SPECIAL OCCASION AND HOW LIKELY ARE YOU TO ORDER THESE VARIOUS FOODS INCLUDING SAUTEED ASPARAGUS SPEARS. AND WE FOUND IN FACT THAT WE COULD CREATE FALSE MEMORIES OF LOVING THE FOOD. WE THEN SHOWED THAT PEOPLE... OF LOVING THE FOOD THEY THEN EMBRACED THE FOOD MORE, THEY SAID THEY WANTED TO EAT IT. IT LOOKS LIKE WE'RE MAKING JUST THE SIGHT OF ASPARAGUS OR THE THOUGHT OF ASPARAGUS SEEM MORE APPETIZING, MORE APPEALING, LESS DISGUSTING TO PEOPLE. AND IN RECENT WORK WE SHOWED THAT PEOPLE WILL ACTUALLY ORDER MORE ASPARAGUS WHEN GIVEN THE CHANCE TO ORDER FOOD THAT THEY THINK THEY'RE GOING TO GET. IF I COULD GET MY HANDS ON ONE OF OUR FORMER PRESIDENTS, THE OLDER GEORGE BUSH, HERE'S WHAT I'D LIKE TO DO WITH HIM. HE'S FAMOUS FOR SAYING: THAT'S A KIND OF A GOOD ATTITUDE I THINK. WELL, WE BELIEVE IF WE COULD GET OUR HANDS ON THE FORMER PRESIDENT AND PLY HIM WITH OUR SUGGESTIVE MANIPULATION IT WOULD BE JUST A MATTER OF TIME BEFORE HE'D BE EATING BROCCOLI AND IT WOULD BE ONE OF HIS VERY FAVORITE VEGGIES. THANK YOU FOR LISTENING. I'M GOING TO STOP NOW AND LET YOU ASK SOME QUESTIONS.

(APPLAUSE) UM, IN THE LOST IN THE MALL STUDIES WE USED THE TECHNIQUE OF SAYING WE TALKED TO YOUR MOTHER, YOUR FATHER, OR YOUR OLDER SIBLING, AND WE PARTLY DID THAT BECAUSE WE THINK THAT SOURCE IS SOMEWHAT AUTHORITATIVE, SOMEBODY WHO WAS OLDER THAN YOU, WOULD HAVE BEEN PRESENT DURING YOUR CHILDHOOD YEARS, AND WE THINK THAT IS PART OF WHY THAT WORKED AS WELL AS IT DID. SO I THINK IT MIGHT BE A LITTLE EASIER IF YOU ARE CLAIMING THE INFORMATION COMES FROM SOMEBODY WHO IS CLOSE TO YOU AND WHO IS LIKELY TO BE KNOWLEDGEABLE. WELL, THERE ARE SOME STUDIES THAT ARE NOW TRYING TO SEE WHETHER THERE'S ANYTHING YOU CAN DO TO TELL THE DIFFERENCE BETWEEN TRUE MEMORIES AND FALSE MEMORIES. SO, FOR EXAMPLE, LOOKING AT THE BEHAVIOR THAT PEOPLE EXPRESS WHEN THEY'RE EXPRESSING A TRUE MEMORY VERSUS EXPRESSING A FALSE MEMORY. OR EVEN TO DO NEURAL IMAGING, FUNCTIONAL MRI TO SEE IF THEY'RE UTTERING A TRUE MEMORY, ONE THAT REFLECTS A PERCEPTION, VERSUS A FALSE MEMORY - SOMETHING THEY LEARNED ABOUT LATER. CAN YOU SEE ANY DIFFERENCES IN BRAIN ACTIVATION? AND I WILL TELL YOU THAT SOMETIMES THESE STUDIES SHOW STATISTICAL DIFFERENCES. A GROUP OF TRUE MEMORIES MIGHT LOOK A LITTLE DIFFERENT THAN A GROUP OF FALSE MEMORIES. THE TRUE MEMORIES MIGHT HAVE A LITTLE MORE SENSORY DETAIL THAN THE FALSE MEMORIES AS A GROUP. BUT AS I TRIED TO SHOW YOU, WE ARE JUST A LONG, LONG WAY FROM BEING ABLE TO TAKE A SINGLE MEMORY AND ACCURATELY CLASSIFY IT BASED ON THESE CRITERIA. BECAUSE EVEN FALSE MEMORIES - AND THIS IS PROBABLY THE ONE MOST IMPORTANT LESSON I THINK I'VE LEARNED FROM MY RESEARCH - IS JUST BECAUSE IT'S DETAILED AND JUST BECAUSE A PERSON IS CONFIDENT ABOUT IT AND JUST BECAUSE THEY EXPRESS IT WITH EMOTION DOESN'T MEAN IT REALLY HAPPENED. BECAUSE FALSE MEMORIES CAN HAVE THOSE CHARACTERISTICS TOO. IT'S CERTAINLY POSSIBLE SOME OF THESE PEOPLE GOT LOST ON SOME OCCASION, BUT THE FALSE MEMORY THAT WE PLANTED WITH THE HELP OF THE SUBJECT'S FAMILY MEMBERS WAS A VERY SPECIFIC ONE. SO YOU WERE LOST IN THE SUCH AND SUCH MALL WHEN YOU WERE SIX YEARS OLD. YOU WERE LAST SEEN BY THE PET STORE. LATER, AFTER A LONG PERIOD OF TIME, YOU WERE RESCUED BY AN OLDER PERSON AND REUNITED WITH THE FAMILY. IT'S A VERY SPECIFIC FALSE MEMORY. NOW IT MIGHT BE YOU WERE LOST SOMETIME SOMEWHERE, BUT WHAT WE'RE TRYING TO GET PEOPLE TO REMEMBER IS THIS VERY SPECIFIC THING THAT THE PARENT HAS HELPED US CONSTRUCT FROM SCRATCH. I BELIEVE THAT THE BEST THING TO DO IF YOU'VE WITNESSED A CRIME IS TO SIT DOWN AND WRITE OUT EVERYTHING YOU CAN REMEMBER BEFORE ANYBODY TALKS TO YOU OR BEFORE YOU HEAR ANY OTHER WITNESS TALK ABOUT WHAT THEY SAW. IN FACT, IN SOME BANKS WHICH HAVE A HIGH RISK OF BEING ROBBED, TELLERS ARE TAUGHT TO DO EXACTLY THAT. SO WHAT IS THAT DOING? YOU'RE PRODUCING A REPORT AS EARLY AFTER THE EVENT AS POSSIBLE - THAT'S GOOD FOR MEMORY - AND FREEZING THAT REPORT, COMMITTING IT TO PAPER IS GOING TO HELP PROTECT IT TO SOME EXTENT FROM SUBSEQUENT MISINFORMATION. WE'RE INTERESTED TO SEE WHAT OTHER THINGS YOU CAN DO WITH THIS TECHNIQUE. I MEAN, WHY NOT TRY TO TURN PEOPLE OFF OF OTHER THINGS AND RIGHT NOW WE HAVE SOME NEW DATA WHERE WE CONVINCE SOME OF THEM THEY GOT SICK DRINKING VODKA AND OTHERS THEY GOT SICK DRINKING RUM. AND NOW WE'RE FINDING THAT THEY SEEM TO WANT TO AVOID THE VODKA OR RUM DRINK. SO YOU CAN SEE HOW IT MIGHT BE HELPFUL THERE. I HADN'T THOUGHT ABOUT COMPLETELY DIFFERENT TYPES OF BEHAVIORS THAT ARE RISKY OR DANGEROUS, OF THE SORT YOU'RE SUGGESTING, BUT THAT IS ACTUALLY A GOOD IDEA THAT IF PEOPLE ARE PRONE TO RECKLESS DRIVING YOU MIGHT BE ABLE TO PLANT A FALSE MEMORY ABOUT BAD DRIVING OR RECKLESS DRIVING AND MAYBE EVEN SEE THAT PEOPLE MIGHT AVOID THAT KIND OF BEHAVIOR AND THAT WOULD BE IMPORTANT AND USEFUL FOR SOCIETY FOR SOMEBODY TO DEMONSTRATE THAT. PUTTING THE IDEA INTO PRACTICE IS GOING TO BE A LITTLE BIT TRICKY BECAUSE ALTHOUGH WHEN I PUBLISH SOME OF THESE RESULTS I DID ACTUALLY GET EMAILS AND CALLS FROM PEOPLE WHO WANT TO KNOW IF THEY COULD COME TO THE LAB AND I WOULD PLANT A FALSE MEMORY IN THEM AND GET THEM DISINTERESTED IN SOME FATTENING FOOD THAT THEY WERE EATING TOO MUCH OF IT'S NOT GOING TO WORK IF YOU'RE KNOWLEDGEABLE. I'M NOT GOING TO BE ABLE TO PLANT A FALSE MEMORY IN YOU IF YOU KNOW THAT'S WHAT I'M TRYING TO DO. YOU NEED THIS KIND OF DECEPTION. NOW THAT DOESN'T PREVENT A PARENT FROM TRYING TO DO THIS WITH THEIR OVERWEIGHT OR OBESE TEENAGER OR OLDER CHILD. WHICH IS SOMETHING THAT I ONCE SUGGESTED DURING AN INTERVIEW TO WHICH MY CRITICS CAME BACK AND SAID "NOW SHE'S SUGGESTING PARENTS GO AROUND LYING TO THEIR CHILDREN. SHE'S DISGUSTING". AND MY REACTION TO THAT IS, GIMME A BREAK. HOW ABOUT THE TOOTH FAIRY AND SANTA CLAUS - YOU'VE BEEN LYING TO YOUR KIDS FOR YEARS.

(LAUGHTER) WELL, DO I BELIEVE IN REPRESSED MEMORY? UM, WHAT I BELIEVE IS THAT PEOPLE CAN GO THROUGH LIFE, CAN NOT THINK ABOUT SOMETHING FOR A LONG TIME

- EVEN SOMETHING REALLY UNPLEASANT - AND BE REMINDED OF IT LATER. THAT HAPPENS IN PSYCHOLOGY. IN THE FIELD OF MEMORY WE HAVE THE CONCEPT OF RETRIEVAL CUES

- SOMETHING THAT IS A CUE CAN TRIGGER A MEMORY THAT WE HAVEN'T THOUGHT ABOUT FOR A LONG TIME. BUT WHEN IT GETS TO THE SUBJECT OF REPRESSION, IT IS SUPPOSED TO BE SOMETHING THAT IS TOO EXTREME, LIKE HOLLY'S BANISHING - HER CLAIM THAT SHE BANISHED TEN YEARS OF RAPES, OR ELEVEN YEARS, INTO THE UNCONSCIOUS BY SOME PROCESS OTHER THAN ORDINARY FORGETTING AND REMEMBERING. THERE IS NO CREDIBLE SCIENTIFIC SUPPORT FOR THAT NOTION. DOESN'T MEAN THERE WON'T BE SOME DAY IN THE FUTURE, THERE JUST ISN'T TODAY AND FOR THAT REASON I DON'T THINK WE SHOULD BE PROSECUTING PEOPLE BASED ON THESE CLAIMS OR SUING THEM CIVILLY AND DEPRIVING THEM OF WHAT MIGHT BE RIGHTFULLY THEIRS. OR WRECKING FAMILIES OR ANYTHING ELSE THAT'S BEEN GOING ON IN OUR SOCIETY AS A RESULT OF THESE MISGUIDED BELIEFS. I REALLY BELIEVE THAT WE ARE ALL SUSCEPTIBLE. I KNOW I AM BECAUSE WHEN I BEGAN THIS LINE OF WORK PERIODICALLY PEOPLE ARE PRANKSTERS, YOU KNOW, MY COLLEAGUES AND FRIENDS TRY TO PLAY TRICKS ON ME AND GET ME TO REMEMBER THINGS THAT DIDN'T HAPPEN AND SOMETIMES THEY SUCCEED. WE'RE ALL TO SOME EXTENT SUSCEPTIBLE. BUT THE WORK ON INDIVIDUAL DIFFERENCES IN THIS AREA HAS SHOWN THAT SOME PEOPLE ARE MORE SUSCEPTIBLE THAN OTHERS. SO TWO THINGS THAT WE KNOW: ONE IS, ARE YOU SOMEBODY WHO HAS LAPSES IN MEMORY AND ATTENTION? DO YOU FREQUENTLY FIND YOURSELF ON YOUR WAY TO SCHOOL OR ON YOUR WAY TO WORK AND SUDDENLY YOU'RE THERE AND YOU'VE SPACED OUT AND HAVE NO RECOLLECTION REALLY OF THE ROUTE? DO YOU SOMETIMES OR FREQUENTLY NOT REMEMBER WHETHER YOU DID SOMETHING OR JUST THOUGHT ABOUT DOING THAT THING? I HAVE THAT WITH MY GARAGE DOOR WHEN I PULL OUT AND, YOU KNOW, I HAVE TO GO BACK EVERY SO OFTEN AND MAKE SURE I REALLY CLOSED IT. IF YOU ARE SOMEBODY WHO HAS THOSE KINDS OF LAPSES IN MEMORY AND ATTENTION YOU ARE MORE SUSCEPTIBLE TO THESE INFLUENCES. THE CORRELATIONS ARE ON THE ORDER OF ABOUT .3 OR .32, NOT GREAT BUT STATISTICALLY SIGNIFICANT. AND NOW IN SOME RECENT WORK WITH MY CHINESE COLLABORATORS WE'RE FINDING THAT YOUR SCORE ON A STANDARD INTELLIGENCE TEST PREDICTS SUSCEPTIBILITY TO MISINFORMATION. SO IF YOU TEND TO SCORE HIGHER ON A STANDARD INTELLIGENCE TEST YOU ARE MORE RESISTANT TO MISINFORMATION, WITH CORRELATIONS ON THE ORDER OF MAYBE .3, .32, .34. AT FIRST WHEN I STARTED SPEAKING OUT ABOUT WHAT I SAW AS A MAJOR PROBLEM IN OUR SOCIETY, PEOPLE HAD THIS REPRESSED MEMORY CONTROVERSY... THOUSANDS AND THOUSANDS OF PEOPLE LIKE HOLLY RAMONA WHO ENDED UP IN SUGGESTIVE PSYCHOTHERAPY - HERS EVEN INVOLVED A SO-CALLED TRUTH SERUM OF SODIUM AMYTAL WHICH IS NOT A TRUTH SERUM AT ALL BUT HELPED TO CONVINCE HER THAT THESE PRODUCTS OF HER UTTERANCES WERE ACTUAL MEMORIES. WHEN I STARTED SPEAKING OUT ABOUT THESE CASES THE THERAPISTS WERE VERY THREATENED. THEY KNEW THAT I WAS SPEAKING TO THEM. THEY BELIEVED THE STORIES THAT THEY WERE HEARING - THEY EVEN PARTICIPATED IN THE CREATION OF THE STORIES THEY WERE GETTING EVEN IF THEY WEREN'T AWARE THEY WERE DOING THAT. THEY WERE USING GUIDED IMAGINATION, DREAM INTERPRETATION AND HYPNOSIS AND SODIUM AMYTAL AND OTHER TECHNIQUES DESIGNED TO SUPPOSEDLY UNEARTH TRAUMA MEMORIES BUT IN THE PROCESS WERE LEADING PEOPLE TO FALSE MEMORIES THAT WERE RUINING FAMILIES ALL THROUGH NORTH AMERICA AND THEN THE WAVE OF THIS SPREAD TO BRITAIN, OTHER PARTS OF EUROPE, NEW ZEALAND, AUSTRALIA, AND OTHER PARTS OF THE WORLD. AND THE THERAPISTS WERE PRETTY ANGRY HEARING THIS MESSAGE OF SKEPTICISM, BUT EVENTUALLY, EVENTUALLY WITH ENOUGH VOICES THEY HAD TO START LISTENING AND PROBABLY THE THING THAT MADE THEM START LISTENING THE MOST IS WHEN THESE INDIVIDUALS, HUNDREDS OF THEM, WOKE UP ONE DAY AND STARTED TO REALIZE THEIR MEMORIES WERE FALSE. AS A SCIENTIST WHO'S STUDIED MEMORY FOR DECADES THAT'S A VERY FASCINATING PHENOMENON. HOW DO YOU REALIZE YOUR MEMORY IS FALSE? IN SOME CASES THEIR INSURANCE RAN OUT... SO THEY NO LONGER HAD ANYBODY TO PAY FOR THE INTERACTION WITH THE SUGGESTIVE PSYCHOTHERAPIST. THEY REALIZED THEIR MEMORIES ARE FALSE, MANY OF THEM REUNITED WITH THEIR FAMILY, AND A FRACTION OF THEM SUED THEIR FORMER THERAPIST FOR PLANTING FALSE MEMORIES. THE LARGEST SETTLEMENT WAS PATRICIA BURGESS WHO SUED A PSYCHIATRIST AND A HOSPITAL IN THE CITY OF CHICAGO AND AFTER SHE AND HER TWO CHILDREN WERE DIAGNOSED WITH MULTIPLE PERSONALITY DISORDER, HOSPITALIZED FOR YEARS, SHE SUED FOR PLANTING FALSE MEMORIES AND RECEIVED A SETTLEMENT OF 10.6 MILLION DOLLARS... THE LARGEST OF THE SETTLEMENTS IN THESE RETRACTIVE CASES. THAT'S WHEN THE PSYCHOTHERAPISTS STARTED PAYING ATTENTION. WELL, YOU KNOW, GEE... PHOBIAS - MAYBE. I MEAN, IF YOU HAVE A SPIDER PHOBIA AND I CONVINCE YOU THAT YOU HAD A WARM, FUZZY EXPERIENCE WITH A SPIDER - IT'S A LITTLE HARD TO IMAGINE ON MY FEET HOW I WOULD DO THAT, BUT IN PRINCIPLE COULD I, THROUGH THIS MENTAL SUGGESTION, GET YOU TO NOT FEEL SO AFRAID OF SPIDERS OR HEIGHTS OR WHATEVER YOUR PHOBIA IS? IN PRINCIPLE. SOMEBODY WOULD NEED TO WORK OUT THE DETAILS AND ACTUALLY TEST WHETHER IT COULD BE DONE. AND AS FOR EATING DISORDERS... MAYBE. MAYBE. IS THAT NOT WHAT HYPNOSIS DOES, IS IMPLANT MEMORIES, IMPLANT SUGGESTION? WELL, HYPNOSIS DOES, ESPECIALLY IF YOU'RE HIGHLY HYPNOTIZABLE, YOU'RE IN A MORE SUGGESTIBLE STATE WHERE IT'S VERY EASY TO SUGGEST THINGS TO YOU AND YOU WILL ADOPT THEM. AND WHETHER THEY'RE BELIEFS OR MEMORIES OR GETTING YOU TO BEHAVE IN PARTICULAR WAYS, GETTING YOU TO LEARN RELAXATION MAYBE CAN HELP YOU LOSE WEIGHT AND CONTROL YOUR ANXIETY, BUT FOR ATTEMPTING TO RETRIEVE ALLEGEDLY REPRESSED MEMORIES

- DANGEROUS. ACTUALLY YOUNG CHILDREN ARE MORE SUSCEPTIBLE TO THESE KINDS OF CONTAMINATIONS THAN OLDER CHILDREN OR ADULTS. SO THERE IS A FAIR AMOUNT OF THIS TYPE OF WORK WITH CHILDREN BETWEEN THE AGES OF THREE AND SIX AND THEY ARE ESPECIALLY SUSCEPTIBLE. I THINK ALSO OLDER ADULTS, THAT IS, 75-YEAR-OLDS, ARE MORE SUSCEPTIBLE TO MEMORY CONTAMINATION TOO THAN YOUNG ADULTS. THERE'S KIND OF THIS INVERTED "U" FUNCTION WITH AGE. SO IF YOU GAVE ME A CHOICE BETWEEN WANTING TO DO IT WITH A 5-YEAR-OLD OR A 75-YEAR-OLD I WOULD PROBABLY PUT MY MONEY ON EASIER WITH THE 5-YEAR-OLD. YOU KNOW, I THINK THE POTENTIAL FOR ABUSE IS DEFINITELY THERE. I HAVE A LITTLE BIT OF UNEASE ABOUT THE FACT THAT CHARLES MORGAN AND OUR COLLABORATORS, WE ARE ABOUT TO PUBLISH THE RESULTS WITH THE SOLDIERS AT SURVIVAL SCHOOL. BECAUSE LOOK HOW EASY IT WAS AFTER ONE HOUR TO GET PEOPLE TO WRONGLY IDENTIFY A PERSON WHO HAD COMMITTED A LOT OF AGGRESSIVE INTERROGATION WITH THEM FOR 30 MINUTES. I THINK IT IS CONCEIVABLE THAT SOMEBODY COULD TAKE THIS SCIENCE AND USE IT TO DIVERT SOMEBODY'S MEMORY AWAY FROM AN ACTUAL PERPETRATOR AND THEREBY IMPEDE JUSTICE NOT INCREASE JUSTICE WHICH IS WHAT I'M INTERESTED IN DOING. AND I DON'T KNOW WHAT WE DO ABOUT THAT, BUT I WORRY. AND THAT'S ONE SPECIFIC EXAMPLE OF HOW AND WHY ONE PERHAPS SHOULD WORRY. BUT I DO IN GENERAL BELIEVE THAT KNOWLEDGE IS GENERALLY GOOD, THAT THE MORE WE KNOW ABOUT HOW THE MIND WORKS THE BETTER WE'RE GOING TO BE ABLE TO PROTECT OURSELVES AND OTHERS. AND TO MAYBE FIGURE OUT WHAT IS GOING ON IN SPECIFIC CASES SO THAT WE AREN'T CONVICTING THE WRONG PEOPLE AND AREN'T ARRIVING AT JUDGMENTS IN CIVIL CASES THAT ARE UNFAIR TO PEOPLE. WE'VE TRIED TO TAKE AWAY MEMORIES AND IT'S A LOT HARDER TO DO. ONE THING YOU CAN DO IS SUBSTITUTE ONE MEMORY FOR ANOTHER. SO WHEN I MAKE A PERSON WHO SAW THE CAR GO THROUGH A STOP SIGN BELIEVE IT WAS A YIELD SIGN, REMEMBER THE YIELD SIGN AND CHOOSE THE YIELD SIGN, OBVIOUSLY I'VE IN SOME SENSE WEAKENED THEIR MEMORY FOR THE STOP SIGN, OR TAKEN IT AWAY, BY SUBSTITUTING SOMETHING ELSE. OR WHEN I MAKE YOU BELIEVE THAT YOU SAW A DIFFERENT PERSON AND YOU ULTIMATELY IDENTIFY THAT DIFFERENT PERSON - YOU'RE OBVIOUSLY WEAKENING AN ORIGINAL MEMORY AND IN THAT SENSE TAKING IT AWAY. BUT IT'S A LITTLE HARDER TO DIRECTLY GET PEOPLE TO JUST REMEMBER SOMETHING DIDN'T HAPPEN. AND A FEW EFFORTS THAT I HAVE ENGAGED IN WITH SOME COLLABORATORS HAVE LED TO MIXED SUCCESS IN THAT AREA. OH, YES. I DEFINITELY DO. ANOTHER PART OF THE TALK I WOULD HAVE SHOWN YOU SOME OF OUR DATA ON CULTURAL MEMORIES WHERE WE USED DOCTORED PHOTOGRAPHS. IN FACT YOU SAW THAT ICONIC IMAGE OF THE LONE STUDENT IN FRONT OF THE TANKS AT TIANANMEN SQUARE THAT WAS TAKEN DURING JUNE OF 1989 AT THE MASSACRE AT TIANANMEN SQUARE. WE DOCTORED THAT PHOTOGRAPH AND PUT CROWDS AROUND THE SCENE AND EVEN A SINGLE VIEWING OF A DOCTORED PHOTOGRAPH CHANGED WHAT PEOPLE REMEMBERED ABOUT THAT VERY PUBLIC EVENT. SO I THINK THROUGH DOCTORED IMAGES AND MEDIA IT'S CERTAINLY POSSIBLE TO CHANGE PEOPLES' MEMORIES FOR A VARIETY OF EVENTS, COLLECTIVE EVENTS, THAT MAKE UP OUR CULTURAL MEMORY. IT'S A QUESTION THAT I THINK NEEDS TO BE ASKED. I MEAN, WHY WOULD DARWIN, GOD, WHOEVER YOU BELIEVE, YOU KNOW, BUILD THIS STRUCTURE, HAVE BUILT US A MEMORY THAT IS SO MALLEABLE? AND I THINK ONE WAY TO ANSWER THAT QUESTION IS TO THINK, WELL, WHAT IT ALLOWS US TO DO THAT'S GOOD IS SOMETIMES ERRORS CREEP INTO OUR MEMORY NATURALLY OR THROUGH OUR OWN THOUGHTS AND INFERENCES, AND WHEN WE'RE EXPOSED TO CORRECT INFORMATION WE CAN CORRECT THE ERRORS IN OUR MEMORY. SO THE SAME PROCESS BY WHICH MEMORY IS MALLEABLE AND I CAN LEAD YOU ASTRAY ALSO ALLOWS US TO CORRECT MEMORIES. BUT I ONCE WROTE A BOOK IN WHICH I POSED THIS QUESTION TO READERS. I SAID IMAGINE THAT THERE WERE A WORLD WHERE YOU COULD GO TO A MEMORY DOCTOR AND HAVE YOUR MEMORIES BE MODIFIED. WHAT WOULD PEOPLE GO TO THE DOCTOR FOR? MAYBE TO WIPE OUT SOME UNPLEASANT MEMORIES THAT WERE DISTURBING YOU. MAYBE TO DISTORT YOUR MEMORIES IN A WAY THAT MAKES YOU FEEL BETTER ABOUT YOURSELF. WELL, WE IN FACT ALREADY DO THAT. WE HAVE PRESTIGE ENHANCING MEMORIES. WE HAVE MEMORIES THAT NATURALLY DISTORT. PEOPLE REMEMBER THEIR GRADES WERE BETTER THAN THEY WERE. THEY REMEMBER THEY GAVE MORE TO CHARITY THAN THEY REALLY DID. THEY REMEMBER THEIR KIDS WALKED AND TALKED AT EARLIER AGES THAN THEY REALLY DID. THEY REMEMBER THEY VOTED IN ELECTIONS THAT THEY DIDN'T VOTE IN. ALL OF THESE ARE PRESTIGE ENHANCING MEMORIES THAT ALLOW US TO FEEL BETTER ABOUT OURSELVES. AND INTERESTINGLY, CLINICALLY DEPRESSED PEOPLE DON'T DO THAT. AND THAT'S WHY IT'S SOMETIMES SAID THEY ARE SADDER BUT WISER. YOU KNOW, I'M NOT THINKING OF ANYTHING IN MY IMMEDIATE EXPERIENCE, I MEAN, EVEN IF I COULDN'T, BECAUSE OF HUMAN SUBJECTS COMMITTEES, PLANT A MEMORY OF SEXUAL ABUSE IN ORDER TO SEE WHAT THE PROCESS WOULD BE LIKE, I SUPPOSE I WOULD BE INTERESTED IN DOING THAT. BECAUSE IT WOULD CURTAIL THE CRITICISM THAT EVENTS THAT YOU AND OTHERS HAVE PLANTED ARE SO FAR REMOVED FROM THAT. I WILL TELL YOU THAT A COLLEAGUE OF MINE PROPOSED A STUDY THAT I WISH HE HAD BEEN ABLE TO DO BUT THE HUMAN SUBJECTS COMMITTEE REFUSED TO LET HIM DO IT. AND HERE IS THE STUDY. IT WAS INSPIRED BY THE FOLLOWING KINDS OF STORIES AND WE'VE HEARD THESE A FEW TIMES NOW. REMEMBER THE STORIES OF THE WOMEN LIKE HOLLY RAMONA WHO GO INTO THERAPY AND THEY HAVE NO KNOWLEDGE THAT THERE WAS ANY SEXUAL ABUSE AT ALL AND THEN THE THERAPIST ENGAGES IN CERTAIN ACTIVITIES AND IN HOLLY'S CASE SHE THEN COMES UP WITH 11 YEARS OF ABUSE. WELL, WE KNOW A LOT OF DETAILS ABOUT HER THERAPY BECAUSE SHE SUED HER FATHER AND THEREFORE WE WERE ABLE TO GET ALL THE MEDICAL RECORDS AND THE THERAPY NOTES AND EVERYTHING. BUT THERE ARE MANY FAMILIES WHERE THE PARENTS KNOW THAT THEIR GROWN UP CHILD IS IN THERAPY. THE PARENTS KNOW THAT THE GROWN UP CHILD HAS DEVELOPED THESE STRANGE, BIZARRE BELIEFS AND MEMORIES ABOUT EXTENSIVE BRUTALIZATION. BUT THEY DON'T KNOW VERY MUCH MORE THAN THAT. THEY DON'T KNOW WHAT WENT ON IN THE THERAPY, THEY DON'T KNOW THE TECHNIQUES OF THE THERAPIST, AND SOME OF THESE ACCUSED PARENTS HAVE HIRED PRIVATE INVESTIGATORS TO POSE AS PATIENTS AND MAKE APPOINTMENTS WITH THOSE THERAPISTS. AND WHEN THAT'S HAPPENED WE'VE SEEN SITUATIONS WHERE ON THE FIRST OR SECOND OR THIRD SESSION THE THERAPIST DIAGNOSES "YOU'RE A SEX ABUSE SURVIVOR AND OUR JOB IS TO RECOVER THOSE MEMORIES". SO A COLLEAGUE WANTED TO DO THIS IN A MORE THOROUGH WAY. HE WANTED TO SEND CONFEDERATES INTO THERAPISTS' OFFICES WITH HIDDEN TAPE RECORDERS, POSING AS PATIENTS, AND FIND OUT JUST HOW OFTEN ARE THESE THERAPISTS IN OUR SOCIETY ENGAGING IN THESE QUESTIONABLE TECHNIQUES? AND HE WASN'T ALLOWED TO DO IT. I THINK WE HAVE JUST ONE MORE QUESTION AT THE BACK THERE. CAN REALISTIC DREAMS BECOME FALSE MEMORIES? OH, YES, THAT'S ANOTHER SOURCE. PEOPLE SOMETIMES CAN'T REMEMBER WHETHER THEY DID SOMETHING OR JUST DREAMED ABOUT DOING IT. AND I HAVE SEEN IN ACTUAL CASES WHERE PEOPLE WILL DREAM THINGS

- AND THIS ESPECIALLY WORKS WHEN THE THERAPIST IS THERE TO ENCOURAGE YOU TO INTERPRET THE DREAM AS A REFLECTION OF A REAL MEMORY. AND THAT'S ONE WAY THEY GET FAR DOWN THAT ROAD TO FALSE MEMORIES. CAN I ON BEHALF OF ALL OF US SAY THANK YOU FOR BEING SUCH A GREAT AUDIENCE TODAY AND TAKING PART WITH YOUR QUESTIONS AND SITTING HERE FOR A LONG HOT DAY.

THAT'S ONE REASON WHY THIS SUBJECT MATTER IS SO IMPORTANT. THERE'S ANOTHER KIND OF CASE THAT I'VE BEEN INVOLVED IN LATELY AND THESE INVOLVE REPRESSED MEMORY ACCUSATIONS. AND BECAUSE I'M ABOUT TO INTRODUCE A VERY SENSITIVE TOPIC, BECAUSE WHEN WE TALK ABOUT REPRESSED MEMORY ACCUSATIONS, WE'RE OFTEN TALKING ABOUT ALLEGEDLY REPRESSED MEMORIES FOR THINGS LIKE SEXUAL ABUSE I THINK IT'S IMPORTANT TO STOP FOR A SECOND AND ACKNOWLEDGE THAT UNFORTUNATELY IN OUR SOCIETY WE HAVE A LOT OF GENUINE CASES OF SEXUAL ABUSE AND THAT THESE VICTIMS - THE WOMEN, THE CHILDREN, THE MEN WHO HAVE BEEN VICTIMS OF SEXUAL CRIME - DESERVE OUR COMPLETE SYMPATHY, EMPATHY AND ATTENTION. BUT I'M NOT TALKING ABOUT THE WOMAN WHO KNEW HER WHOLE LIFE THAT SHE WAS MOLESTED AND MAYBE EVENTUALLY GOT THE COURAGE TO TELL SOMEBODY ABOUT IT. I'M TALKING ABOUT ONE SPECIFIC KIND OF SITUATION AND IT'S EXEMPLIFIED BY A FAMOUS CASE IN THE UNITED STATES INVOLVING THE RAMONA FAMILY. THE MAN THAT YOU'RE LOOKING AT IS GARY RAMONA. HE WAS AN EXECUTIVE WITH ONE OF OUR LARGE WINERIES IN CALIFORNIA. HE HAD A FANTASTIC LIFE, HE THOUGHT. VICE-PRESIDENT OF THIS WINERY MAKING $400,000 A YEAR, HAD A TERRIFIC FAMILY, LIVED IN A BEAUTIFUL HOUSE. HIS WORLD CAME CRASHING DOWN WHEN HIS DAUGHTER, HOLLY, WENT INTO THERAPY AND THERE SHE DISCOVERED SOMETHING THAT SHE APPARENTLY DIDN'T KNOW BEFORE. SHE DISCOVERED THROUGH THIS PSYCHOTHERAPY THAT HER FATHER HAD RAPED HER BETWEEN THE AGES OF FIVE AND 16, INCLUDING NUMEROUS RAPES, BEING FORCED TO HAVE SEX WITH THE FAMILY DOG, PRINCE, ALL ALLEGEDLY BURIED INTO HER UNCONSCIOUS UNTIL THE THERAPY MADE HER AWARE OF THESE EXPERIENCES. HOLLY SUED HER FATHER FOR THE ABUSE. AND IN AN INTERESTING TWIST AND WHAT MADE THIS CASE SO FAMOUS IN THE UNITED STATES IS THE FATHER TURNED AROUND AND SUED THE THERAPIST FOR PLANTING FALSE MEMORIES IN THE MIND OF HIS DAUGHTER AND THE FATHER WAS AWARDED A HALF A MILLION DOLLARS BY A JURY IN NAPA, CALIFORNIA. SO THIS WAS THE FIRST CASE WHERE A THIRD PARTY, IN THIS CASE THE FATHER, WAS ABLE TO SUE THE THERAPIST

- THE FATHER WAS NOT THE PATIENT BUT HE SUED THE THERAPIST FOR PLANTING FALSE MEMORIES AND RECEIVED A SIZABLE JUDGMENT. SO WHAT'S GOING ON IN THIS SITUATION? HOW CAN PEOPLE BE LED TO BELIEVE THAT THEY WERE VICTIMS OF TEN YEARS OF RAPES AND FORCED BESTIALITY WHEN IN FACT THIS ALMOST CERTAINLY DIDN'T HAPPEN? I THINK THAT THE WORK THAT I AND MY STUDENTS AND COLLABORATORS HAVE BEEN DOING CAN HELP US UNDERSTAND THE MEMORY MISTAKES THAT OCCUR IN THESE KINDS OF SITUATIONS AND I WANT TO TELL YOU A LITTLE ABOUT SOME OF THE OLDER WORK THAT YOU MAY HAVE READ ABOUT AND NOW THE NEWER KINDS OF FINDINGS THAT WE'VE BEEN DISCOVERING MORE RECENTLY. SO IN MY WORK WE USE A COUPLE OF DIFFERENT PARADIGMS AND I THINK OF THESE TWO PARADIGMS AS KIND OF MAPPING ON TO THE EYEWITNESS SITUATION AND MAYBE THE ALLEGATION OF REPRESSED MEMORY SITUATION. IN ONE PARADIGM WHICH WE CALL THE MISINFORMATION PARADIGM, WHAT THE EXPERIMENTS LOOK LIKE IS PEOPLE SEE SOME SORT OF AN EVENT, MAYBE A SIMULATED ACCIDENT OR A SIMULATED CRIME. MAYBE WE STAGE A LIVE EVENT IN FRONT OF WITNESSES. LATER ON THEY'RE GIVEN SOME POST-EVENT INFORMATION AND FINALLY THEY'RE TESTED. WE WANT TO KNOW WHAT YOU ACTUALLY REMEMBER SEEING YOURSELF. AND OF COURSE WE FIND IN MANY OF THESE SITUATIONS A MISINFORMATION EFFECT THAT WITH POST-EVENT INFORMATION IS MISLEADING. IT CAN INTERFERE, DISTORT, TRANSFORM SOMEBODY'S MEMORIES FOR AN EVENT THAT THEY TRULY DID EXPERIENCE. BUT IN THE NEWER STUDIES THAT GO UNDER THE RUBRIC OF RICH FALSE MEMORY THERE'S NO EVENT THAT HAPPENS, BUT WHAT WE DO IS PLY PEOPLE WITH SUGGESTION ABOUT THE PAST AND THEN WE SEE WHETHER OR NOT THEY ARE SEDUCED BY THE SUGGESTION AND START TO REMEMBER THINGS THAT DIDN'T HAPPEN. WE TEST THEIR MEMORY FOR THEIR CHILDHOOD OR RECENT PAST. AND SO, FOR EXAMPLE, IF YOU WERE GOING TO COME INTO A LABORATORY SITUATION AND BE A PART OF A MISINFORMATION PARADIGM, THE FIRST PARADIGM, I MIGHT SHOW YOU AN EVENT OF SOME SORT

- MAYBE IT WOULD BE A VIDEO EVENT, MAYBE IT WOULD BE A LIVE EVENT, MAYBE IT WOULD BE AN EVENT THAT WOULD UNFOLD THROUGH A SERIES OF SLIDES. AND SO IN SOME OF OUR CURRENT WORK WE'RE ACTUALLY USING EVENTS THAT UNFOLD IN A SERIES OF SLIDES. IT'S JUST EASIER TO GET CONTROL OVER THE MATERIALS. IN ONE OF OUR EVENTS A WOMAN IS WALKING DOWN THE STREET, AND THEN MORE THINGS HAPPEN. A MAN APPROACHES HER, HE KNOCKS INTO HER, SHE DROPS HER BELONGINGS. HE REACHES OVER, APPEARING TO HELP, BUT ACTUALLY HE REACHES INTO HER BAG AND PULLS HER WALLET OUT AND HE PUTS IT INTO HIS JACKET POCKET. AND THEN MORE THINGS HAPPEN AND EVENTUALLY THE WOMAN NOTICES HER WALLET IS MISSING AND SHE STARTS TO TALK TO NEARBY PEOPLE TO SEE IF ANYBODY CAN REMEMBER ANYTHING OR SAW ANYTHING. NOW THE POST-EVENT INFORMATION IS INFORMATION THAT COMES TO THESE WITNESSES AFTER THE EVENT IS COMPLETELY OVER. AND SO IT MIGHT BE A VERSION OF THE EVENT ALLEGEDLY REMEMBERED BY SOME OTHER WITNESS. IT MIGHT BE READ TO THE SUBJECT. IT MIGHT BE SOMETHING THAT THE SUBJECT READS HIMSELF OR HERSELF. AND THEN OUR SUBJECTS ARE TESTED. SO IF THE EVENT SHOWED THE THIEF PUTTING THE WALLET IN HIS JACKET POCKET, THE POST-EVENT INFORMATION MIGHT SUGGEST THAT HE PUT IT IN HIS PANTS POCKET. THIS IS WHAT WOULD HAPPEN IN A MISINFORMATION EXPERIMENT AND THEN PEOPLE WOULD BE TESTED. WE WANT TO KNOW EXACTLY WHAT YOU ACTUALLY SAW AT THE TIME OF THE EVENT, AND UNDER MANY CONDITIONS PEOPLE WILL CLAIM THAT THEY SAW THE MISINFORMATION. THAT'S WHAT THEY REMEMBER, THAT'S BECOME THEIR MEMORY. WE'VE DONE OTHER EXPERIMENTS IN THE PAST THAT USED THIS SAME PROCEDURE, AND SO, FOR EXAMPLE, WE'VE SHOWN PEOPLE SIMULATED ACCIDENTS WHERE A CAR GOES THROUGH AN INTERSECTION WITH A STOP SIGN AND WITH A SINGLE LEADING QUESTION WE CAN GET PEOPLE TO REMEMBER THAT THEY SAW IT GO THROUGH THE INTERSECTION WITH A YIELD SIGN INSTEAD OF A STOP SIGN. IN SOME RECENT WORK, AND THIS IN COLLABORATION WITH MAIA COOK WHO'S A GRADUATE STUDENT AT THE UNIVERSITY OF CALIFORNIA IRVINE AND HER CHIEF PHD ADVISOR, DON HOFFMAN, AND ANOTHER GRADUATE STUDENT, JULIE KWAK, A PAPER THAT WE'RE NOW WRITING UP, IT'S KIND OF AN INTERESTING EXAMPLE, A DIFFERENT EXAMPLE, AND IN ORDER TO LET YOU EXPERIENCE THIS I WANT TO JUST DO A LITTLE DEMONSTRATION HERE WITH YOU NOW. AND SO YOU'RE GOING TO BE SUBJECTS AND YOU'RE GOING TO SEE SOME FACES AND THESE ARE YOUR STUDY FACES

- THE ONES YOU'RE GOING TO HAVE TO REMEMBER LATER ON. NOW IN A REAL EXPERIMENT WE'D LET SOME TIME GO BY JUST LIKE HAPPENS AFTER A CRIME OCCURS AND SOME TIME GOES BY BEFORE THE POLICE COME AND START TO QUESTION WITNESSES. SO IMAGINE SOME MORE TIME HAS GONE BY, AND NOW WHAT I WANT YOU TO DO IS YOU DON'T ACTUALLY HAVE TO TAKE A PIECE OF PAPER, BUT IF YOU HAVE ONE HANDY, IF YOU HAPPEN TO BE TAKING ANY NOTES YOU CAN WRITE DOWN ON A CORNER. I'M GOING TO SHOW YOU SOME PAIRS OF FACES AND IF YOU RECOGNIZE THE ONE ON THE LEFT YOU WOULD PUT DOWN AN "L" AND IF YOU RECOGNIZE THE ONE ON THE RIGHT YOU PUT DOWN AN "R" OR YOU CAN JUST THINK THESE TO YOURSELF. I DON'T WANT YOU TO SAY ANYTHING OUT LOUD AND DON'T SAY ANYTHING TO ANYBODY NEXT TO YOU. JUST FOR YOURSELF, IS IT THE ONE ON THE LEFT OR THE RIGHT? THINK TO YOURSELF. THE LEFT OR THE RIGHT? THINK FOR YOURSELF. NOW WE LET MORE TIME... AND NOW THE PERSON IS AT A POLICE STATION, FOR EXAMPLE, AND IS GOING TO HAVE TO TRY TO RECOGNIZE THE FACES THAT WERE ORIGINALLY SEEN. AND WHAT I'D LIKE TO SEE YOU DO NOW IS RAISE YOUR HAND WHEN I CALL THE ANSWER THAT YOU WOULD GIVE. SO THIS IS NOW YOUR FINAL TEST. PEOPLE WHO RECOGNIZE THE ONE ON THE LEFT RAISE YOUR HAND. OKAY, THE ONE ON THE RIGHT - RAISE YOUR HAND. IF YOU LOOK AROUND I THINK YOU SEE NO RIGHTS MAYBE, I CAN'T TELL IF THERE ARE ANY. THE LIGHTS ARE REALLY BRIGHT UP HERE BUT THERE WAS A LOT OF LEFTS THAT'S FOR SURE. WHO RECOGNIZES THE ONE ON THE LEFT? RAISE YOUR HAND. OKAY, JUST A FEW HANDS. HOW ABOUT THE ONE ON THE RIGHT? ALRIGHT, QUITE A FEW HANDS. WHO RECOGNIZES THE ONE ON THE LEFT? RAISE YOUR HAND. QUITE A FEW HANDS. THE ONE ON THE RIGHT? QUITE A FEW HANDS! HOW CAN THAT BE? HOW CAN HALF OF YOU BE RECOGNIZING THE ONE ON THE LEFT AND THE OTHER HALF THE ONE ON THE RIGHT? LET ME TELL YOU WHAT WENT ON HERE. I SHOWED YOU THREE FACES IN THE ORIGINAL STUDY PHASE AND I TESTED YOU IN THE FINAL TEST WITH PAIRS OF FACES. THERE'S THE RIGHT ANSWER FOR THE FIRST PAIR. THERE'S THE RIGHT ANSWER FOR THE SECOND PAIR. AND THERE'S THE RIGHT ANSWER FOR THE THIRD PAIR. BUT HOW COME SO MANY OF YOU WERE WRONG ON THAT THIRD PAIR? THE ANSWER IS THAT SOMETHING DIFFERENT HAPPENED IN THE MIDDLE. IN THE MIDDLE I TESTED YOU WITH THE ORIGINAL FACE AND A COMPLETELY NOVEL ONE AND YOU HAD ANOTHER EXPOSURE TO THAT ORIGINAL FACE. FOR THE SECOND PAIR YOU WEREN'T TESTED AT ALL. AND FOR THE THIRD PAIR I SNUCK IN AN ALTERED VERSION OF THE FACE. I INDUCED YOU TO PICK THAT WRONG BUT SIMILAR FACE, AND NOW WHEN I GAVE YOU THE FINAL TEST YOU STUCK WITH THAT WRONG FACE EVEN WHEN THE TRUTH WAS STARING YOU IN THE FACE. YOU DIDN'T RECOGNIZE IT ANYMORE. WHY? FOR SOME OF YOU THAT ALTERED FACE HAD BECOME YOUR MEMORY. NOW WE'VE COLLECTED LOTS OF DATA USING THIS PARADIGM WITH MANY MORE FACES AND MANY, MANY EXPERIMENTS. AND BECAUSE MY LASER POINTER DOESN'T SEEM TO BE WORKING HERE I'M JUST GOING TO SUMMARIZE FOR YOU WHAT HAPPENS. WHEN I INDUCE YOU TO PICK AN ALTERED FACE, BECAUSE THE REAL GUY ISN'T THERE, ONLY A SOMEWHAT SIMILAR LOOKING ONE IS THERE, MANY PEOPLE WILL DO AS WE SAW HERE: STICK WITH THE ALTERED FACE AND THEY DON'T RECOGNIZE THE TRUE FACE ANYMORE. AND THAT'S WHAT THESE SLIDES WOULD REVEAL IF I WALKED YOU THROUGH THE ACTUAL DATA FROM THESE EXPERIMENTS. SO WE HAVE SHOWN IN A SERIES OF SOME 15-ODD STUDIES THAT PEOPLE CAN BE SEDUCED TO PICK A WRONG FACE AND IT PREVENTS THEM FROM RECOGNIZING THE TRUTH LATER ON. NOW YOU MAY THINK THIS IS A LITTLE BIT ARTIFICIAL BECAUSE WE'RE WORKING WITH THESE CONSTRUCTED FACES, BUT I WANT TO TELL YOU A LITTLE BIT ABOUT WHY THIS IS IMPORTANT AND HOW IT MAY HAVE HAPPENED IN AN ACTUAL CASE. WE HAVE A VERY POPULAR NEWS PROGRAM, 60 MINUTES, THAT'S ON EVERY SUNDAY NIGHT, AND TWO WEEKS AGO THERE WAS A STORY OF ONE OF THE WRONGFUL CONVICTIONS THAT'S IN THAT COLLECTION OF THE INNOCENCE PROJECT. IN FACT, A BOOK HAS BEEN WRITTEN ABOUT THIS CASE. IT INVOLVES A RAPE VICTIM, JENNIFER THOMPSON-CANNINO, WHO ACTUALLY WAS RAPED WHEN SHE WAS A COLLEGE STUDENT. SHE IDENTIFIED A MAN NAMED RONALD COTTON AS HER RAPIST. HE WAS CONVICTED AND SENT TO PRISON AND SERVED A VERY LONG TIME UNTIL DNA REVEALED NOT ONLY THAT HE WAS INNOCENT BUT THAT THE REAL GUY, BOBBY POOLE, IS THE ONE WHO ACTUALLY DID IT. AND INTERESTINGLY, AFTER JENNIFER HAD PICKED OUT RONALD COTTON AND WAS SURE THAT THAT WAS HIM, BECAUSE BOBBY POOLE WAS NOT IN THE LINEUP, LATER ON WHEN SHE SAW BOBBY POOLE SHE DIDN'T RECOGNIZE HIM. SHE SAID "NO, THAT'S NOT MY RAPIST". BUT ULTIMATELY DNA PROVED THAT IT WAS. SO I GOT INTERVIEWED FOR THIS PROGRAM. WHY DOES THIS HAPPEN? HOW CAN WE EXPLAIN THIS? AND THE INTERVIEWER WAS LESLIE STAHL, ONE OF THE ANCHORS FOR 60 MINUTES, AND I GAVE HER THIS TEST THAT I TOOK YOU THROUGH AND SHE LOOKED AT THAT PAIR OF FACES FOR THE LONGEST TIME AND FINALLY SHE SAID "I'M JUST BAFFLED" AND ENDED UP PICKING, AS MANY OF YOU DID, THE WRONG FACE. SHE STUCK WITH THE FACE THAT SHE WAS INDUCED TO PICK BECAUSE THE REAL GUY WASN'T THERE. AND THAT'S WHAT HAPPENS IN ALL OF THESE LINEUPS WHERE THERE'S A WRONGFUL CONVICTION. THE REAL GUY WASN'T THERE. AND I WANT TO SHOW YOU A RECENT EXAMPLE THAT REVEALS THAT THE SAME KIND OF THING WHERE WE CAN INDUCE PEOPLE TO PICK THE WRONG PERSON AND THEY'LL STICK WITH THAT PICK CAN BE SHOWN TO HAPPEN EVEN WITH EDUCATED, TRAINED INDIVIDUALS. WE'VE GOT A PROGRAM IN THE UNITED STATES WHERE WE TRAIN OUR MILITARY THROUGH SOMETHING CALLED SURVIVAL SCHOOL, TO BE ABLE TO SURVIVE AND TO KNOW WHAT TO EXPECT IF THEY ARE EVER CAPTURED AS PRISONERS OF WAR. THE PROGRAM HAS BEEN STUDIED BY A PSYCHIATRIST NAMED CHARLES MORGAN AND HE'S DONE SEVERAL STUDIES OF THESE SOLDIERS WHO HAVE GONE THROUGH THIS VERY STRESSFUL SURVIVAL SCHOOL THAT I'M GOING TO TELL YOU A LITTLE BIT ABOUT. WELL, I HAD A CHANCE TO WORK WITH MORGAN, HIS FRIENDS CALL HIM ANDY, AND TO CONVINCE HIM TO INTRODUCE SOME MISINFORMATION IN ONE OF THE SURVIVAL SCHOOL STUDIES, AND THAT'S THE BIT I WANT TO TELL YOU ABOUT. NOW IN SURVIVAL SCHOOL WHAT THESE SOLDIERS ARE LEARNING, THE TECHNICAL NAME IS CALLED "SERE" FOR SURVIVE, EVADE, RESIST, AND ESCAPE. WHAT HAPPENS THESE SOLDIERS ARE LEARNING HOW TO EVADE THE ENEMY, THEY'RE LEARNING HOW TO ESCAPE IF THEY'RE HUNTED DOWN. THEY DO GET HUNTED DOWN AND THEY DO GET CAPTURED AND THEN THEY'RE IMPRISONED - WELL, THEY AREN'T ACTUALLY TORTURED BUT THEY'RE TREATED VERY SHABBILY, LET'S PUT IT THAT WAY. THEY ALSO ARE THEN PUT INTO THIS MOCK PRISONER OF WAR CAMP SO THEY GET TO EXPERIENCE WHAT THAT'S GOING TO BE LIKE SHOULD IT EVER HAPPEN TO THEM. THEY'RE HOODED, THEY'RE STRAPPED TOGETHER, THEY'RE STRIPPED OF THEIR IDENTITIES, THEY HAVE THIRD WORLD TOILETS WITH NO TOILET PAPER THAT THEY HAVE TO ENDURE. AND THEY'RE EXTRACTED BY HELICOPTER, WHICH IS WHAT WOULD HAPPEN TO THEM IF THE HELICOPTER CAN'T LAND BECAUSE THE JUNGLE'S TOO DENSE AND SO ON. WHEN THIS EXPERIENCE IS OVER THEY'RE RESCUED AND THERE'S A TREMENDOUS EMOTIONAL RELIEF WHEN THEY GO THROUGH THIS RESCUE EXPERIENCE. THIS IS VERY STRESSFUL. SO IF YOU LOOK AT THAT PURPLE-RED BAR YOU SEE THE CORTISOL LEVELS OF STRESS HORMONE. THEY'RE VERY HIGH. THEY'RE HIGHER FOR THIS EXPERIENCE FOR THESE INDIVIDUALS THAN, FOR EXAMPLE, SKYDIVING FOR THE FIRST TIME AND OTHER KINDS OF NATURAL SITUATIONS THAT PEOPLE SOMETIMES FIND THEMSELVES IN THAT ARE VERY, VERY STRESSFUL. SO IN THE MISINFORMATION STUDY THAT WE'VE JUST COMPLETED AND WE'RE IN THE PROCESS OF WRITING UP, WHAT HAPPENS IS THAT THESE SOLDIERS ARE GOING THROUGH THE CLASSROOM INSTRUCTION, THEY'RE GOING THROUGH THIS EVASION EXPERIENCE WHERE THEY'RE BEING HUNTED DOWN AND THEY HAVE TO TRY TO AVOID BEING CAPTURED. THEY THEN DO GET CAPTURED AND THEY GO THROUGH THIS VERY STRESSFUL INTERROGATION THAT LASTS FOR A HALF HOUR AND ABOUT AN HOUR AFTER THAT SOME OF THEM GET MISINFORMATION. HOW DOES THE MISINFORMATION GET INTRODUCED? A NEW INTERROGATOR SAYS "LOOK AT THIS PHOTO OF THE PERSON WHO WAS INTERROGATING YOU DURING THAT EXTREMELY STRESSFUL INTERROGATION. DID HE GIVE YOU ANYTHING TO EAT? DID HE GIVE YOU A BLANKET? DID HE LET YOU SPEAK TO ANYBODY ELSE? BUT THE PERSON IN THE PHOTOGRAPH IS THE WRONG PERSON. AND SO HERE'S AN EXAMPLE OF A REAL PERPETRATOR, THE ONE WHO ACTUALLY DID CONDUCT THE INTERROGATION, AND THERE'S AN EXAMPLE OF A FOIL. THEY DON'T EVEN NEED TO LOOK VERY SIMILAR TO EACH OTHER. AND THEN WHAT HAPPENED IN THIS STUDY IS THE SUBJECTS WERE GIVEN A SET OF PHOTOS. THEY HAD TO TRY TO PICK THE INTERROGATOR OUT. IT'S WHAT WE CALL A "TARGET ABSENT ARRAY". THE REAL GUY ISN'T THERE BUT THE FOIL IS, AND YOU CAN SEE WHAT THESE SOLDIERS DID. CONTROL SOLDIERS WHO DID NOT GET ANY MISINFORMATION PHOTOGRAPH ARE WRONGLY PICKING SOMEBODY OUT ABOUT HALF THE TIME. SO THE REAL GUY ISN'T THERE AND THEY'RE MAKING A FALSE IDENTIFICATION BY PICKING SOMEBODY ABOUT HALF THE TIME. BUT LOOK WHAT HAPPENS IN THE MISINFORMATION CONDITION. 91% OF THE TIME THOSE SOLDIERS PICKED OUT A PERSON AND SAID "THAT'S THE ONE WHO INTERROGATED ME" AND THE ONE THEY ARE ALMOST ALWAYS PICKING OUT IS THE FOIL WHO'S FACE WAS SHOWN IN THE PHOTOGRAPH. SO HERE YOU SEE MISINFORMATION HAVING A POWERFUL EFFECT IN A SOMEWHAT NATURALLY STRESSFUL CIRCUMSTANCE AND LEADING AFTER A FAIRLY SHORT PERIOD OF TIME TO A WRONGFUL CONVICTION. SO THAT'S JUST A RECENT EXAMPLE OF A MISINFORMATION STUDY. THESE MISINFORMATION STUDIES ARE STILL POPULAR. PEOPLE ARE LEARNING NEW THINGS ABOUT THE POWER OF MISINFORMATION TO CHANGE YOUR MEMORY FOR THE DETAILS OF AN EVENT THAT ACTUALLY DID HAPPEN. BUT WHEN I STARTED TO GET INVOLVED IN THESE REPRESSED MEMORY CASES LIKE THE ONE INVOLVING THE RAMONA FAMILY WHERE THE DAUGHTER IS SAYING "I WAS RAPED FOR 11 YEARS AND FORCED INTO BESTIALITY", ALLEGEDLY REPRESSING ALL THESE MEMORIES UNTIL SHE WENT INTO THERAPY AND SOMEHOW THE THERAPY MADE HER BELIEVE THAT THESE THINGS HAPPENED TO HER. A NEW QUESTION AROSE. I MEAN, CAN YOU AT LEAST SHOW US THAT YOU CAN DO MORE THAN TURN A STOP SIGN INTO A YIELD SIGN? OR CHANGE THE FACE THAT SOMEBODY RECOGNIZES WHEN THEY ACTUALLY HAVE EXPERIENCED AN EVENT? I MEAN, SHOW US THAT YOU CAN CREATE AN ENTIRELY FALSE MEMORY FOR THINGS THAT NEVER HAPPENED. ALRIGHT, THERE'S A CHALLENGE. HOW ARE YOU GOING TO DO THIS? WE'RE NOT GOING TO BE ABLE TO DO STUDIES IN WHICH WE BRING SUBJECTS IN AND TRY TO CONVINCE THEM THAT DADDY RAPED THEM AND FORCED THEM INTO BESTIALITY. WHY? BECAUSE WE HAVE HUMAN SUBJECTS REVIEW COMMITTEES ON COLLEGE AND UNIVERSITY CAMPUSES THAT REVIEW THE PROPOSED RESEARCH AND IF IT LOOKS LIKE IT MIGHT BE HARMFUL TO SUBJECTS THEY'RE NOT GOING TO LET YOU DO IT. SO WE NEEDED SOME SORT OF AN ANALOGUE. WHAT COULD WE DO, WHAT KIND OF A MEMORY COULD WE PLANT IN THE MINDS OF PEOPLE THAT WE COULD GET THROUGH THE HUMAN SUBJECTS COMMITTEE, WOULDN'T BE SO HORRIBLE FOR SUBJECTS, BUT WOULD AT LEAST HAVE BEEN MILDLY TRAUMATIC IF THE EVENT ACTUALLY DID HAPPEN. AND EVENTUALLY AFTER LONG DISCUSSIONS WITH MY GRADUATE STUDENTS AND OTHERS WE CAME UP WITH THE IDEA WHY DON'T WE TRY TO MAKE PEOPLE BELIEVE THAT WHEN THEY WERE A KID OF ABOUT FIVE OR SIX YEARS OLD THEY WERE LOST IN A SHOPPING MALL. THEY WERE FRIGHTENED AND CRYING FOR AN EXTENDED TIME. THEY WERE ULTIMATELY RESCUED BY AN ELDERLY PERSON AND REUNITED WITH THE FAMILY. WELL, THAT WAS OUR PLAN BUT HOW WERE WE GOING TO DO IT? HOW ARE WE GOING TO GET PEOPLE TO DEVELOP A FALSE MEMORY LIKE THAT? THE TECHNIQUE WE CAME UP WITH WAS TO TELL OUR SUBJECTS WE'VE TALKED TO YOUR MOTHER, OR YOUR FATHER, OR YOUR OLDER BROTHER, AND WE FOUND OUT SOME THINGS THAT HAPPENED TO YOU WHEN YOU WERE ABOUT FIVE OR SIX YEARS OLD. NOW WE REALLY DID TALK TO THE RELATIVE AND WE REALLY GOT FROM THE RELATIVE SOME EXAMPLES OF SOME TRUE THINGS THAT DID HAPPEN TO THE SUBJECT WHEN THE SUBJECT WAS A YOUNG CHILD, SO WE PRESENTED THOSE EXAMPLES TO OUR SUBJECTS AND THEN THE MADE UP EXAMPLE ABOUT YOU WERE WITH THE FAMILY, YOU WERE SHOPPING IN THIS SHOPPING MALL - OR OTHER BIG PUBLIC STORE IF THERE WERE NO SHOPPING MALLS IN THAT NEIGHBORHOOD, AND WE PLIED OUR SUBJECTS WITH THIS SUGGESTIVE INTERVIEWING. WE INTERVIEWED THEM THREE TIMES OVER THE COURSE OF TWO WEEKS AND BY THE TIME WE WERE DONE, A QUARTER OF OUR SUBJECTS, ORDINARY PEOPLE, FELT SWAYED AT THE SUGGESTIVE INTERVIEWING AND BEGAN TO REMEMBER ALL OR PART OF THIS MADE UP EXPERIENCE ABOUT BEING LOST IN THE MALL AND FRIGHTENED, CRYING, RESCUED AND REUNITED WITH THE FAMILY. SO THAT WAS OUR FIRST CLUE THAT YOU COULD PLANT A RICH FALSE MEMORY, A DETAILED MEMORY OF SOMETHING THAT DIDN'T HAPPEN. BUT OUR WORK WAS CRITICIZED, AND THE FIRST THING WE HEARD FROM PEOPLE WAS, YOU KNOW, GETTING LOST IS REALLY COMMON. MAYBE YOU COULD TRY TO SHOW THAT YOU COULD PLANT A MEMORY OF SOMETHING THAT WOULD BE A LITTLE BIT MORE BIZARRE OR UNUSUAL THAN GETTING LOST, WHICH IS COMMON. AND THAT'S WHAT I THINK YOU NEED TO SHOW IF YOU WANT TO BE APPLYING THESE IDEAS TO THESE CASES, THE REPRESSED MEMORY ACCUSATION CASES WHERE THESE STORIES COME OUT AFTER SUGGESTIVE PSYCHOTHERAPY. WELL, OTHER INVESTIGATORS CAME ALONG - AND THIS IS THE ONE NICE THING, WHEN PEOPLE TAKE AN INTEREST IN YOUR WORK THEY OFTEN WANT TO EITHER REPLICATE IT OR PARTICULARLY EXTEND IT. THEY'LL DO NEW STUDIES, YOU GET TO LEARN ABOUT SOMETHING YOU CARE ABOUT, SOMEBODY ELSE IS DOING ALL THE WORK AND HELPING YOU FIND OUT. AND SO ONE INVESTIGATOR RESPONDED TO THIS CHALLENGE AND PLANTED FALSE MEMORIES USING THAT SAME TECHNIQUE - WE TALKED TO YOUR MOTHER OR FATHER OR OLDER SIBLING. WE FOUND OUT SOME THINGS THAT HAPPENED TO YOU

- PLANTED THE FALSE MEMORY: WHEN YOU WERE A KID YOU WENT TO A FAMILY WEDDING AND YOU WERE PLAYING BY THE TABLE OVER THERE WITH A PUNCH BOWL ON IT AND YOU ACCIDENTALLY KNOCKED INTO THAT TABLE AND YOU SPILLED PUNCH ALL OVER THE PARENTS OF THE BRIDE. REMEMBER THAT? WELL, BY THE TIME PROFESSOR HYMAN WAS DONE WITH A COUPLE OF SUGGESTIVE INTERVIEWS A QUARTER OF HIS NORMAL, ORDINARY ADULTS HAD FALLEN FOR THE SUGGESTIVE INTERVIEWING AND BEGAN TO REMEMBER ALL OR PART OF THIS MADE UP EXPERIENCE ABOUT THE ACCIDENT AT THE FAMILY WEDDING. AN EXCELLENT BIT OF WORK FROM THE UNIVERSITY OF BRITISH COLUMBIA WHERE DR. STEVEN PORTER, THIS WAS HIS DOCTORAL DISSERTATION WORK, CONVINCED HIS SUBJECTS THAT THEY HAD AS A CHILD A SERIOUS INDOOR ACCIDENT OR OUTDOOR ACCIDENT OR THEY'D BEEN A VICTIM OF A VICIOUS ANIMAL ATTACK. HE SUCCEEDED IN GETTING - YOU CAN SEE HOW GOOD PEOPLE ARE GETTING AT DOING THIS

- IN GETTING 26% OF HIS SUBJECTS TO HAVE A COMPLETE FALSE MEMORY AND AN ADDITIONAL 30% TO HAVE A PARTIAL FALSE MEMORY OF THESE MADE UP EXPERIENCES. WELL, I THINK YOU CAN SEE THAT THESE ARE FAIRLY STRONG FORMS OF SUGGESTION. IF YOU SAY TO A SUBJECT "I TALKED TO YOUR MOTHER AND YOUR MOTHER TOLD US SOME THINGS THAT HAPPENED TO YOU WHEN YOU WERE FIVE OR SIX YEARS OLD, WE WANT TO SEE WHAT YOU CAN REMEMBER AND HOW YOUR MEMORIES COMPARE TO YOUR MOTHER'S. SAY YOU CAN'T REMEMBER IF YOU CAN'T". STILL, IT'S A PRETTY STRONG SUGGESTION. "YOUR MOTHER SAID IT." MAYBE WITH LESS STRONG SUGGESTION YOU WOULDN'T GET THESE SAME EFFECTS, AND OF COURSE THE PSYCHOTHERAPISTS WOULD ARGUE THAT "WE AREN'T DOING ANYTHING LIKE THAT IN PSYCHOTHERAPY". BUT MY RESPONSE TO THAT IS, YOU MAY NOT BE SAYING TO YOUR PATIENTS 'I WAS THERE, I SAW IT HAPPEN', BUT SOME OF THE PSYCHOTHERAPISTS WERE DOING THINGS THAT WERE MAYBE MORE MODESTLY SUGGESTIVE AND PERHAPS EVEN MORE INSIDIOUS FOR THAT REASON. THEY WERE DOING THINGS LIKE GUIDED IMAGINATION AND ADMITTING THAT THEY DID IT. AND SO IT GOES SOMETHING LIKE THIS: "YOU'VE GOT BULIMIA, YOU ARE DEPRESSED". THE THERAPIST SAYS "80% OF PEOPLE I'VE SEEN WITH YOUR SYMPTOMS WERE SEXUALLY ABUSED AS A CHILD. I THINK SOMETHING LIKE THAT MAY HAVE HAPPENED TO YOU". THE PATIENT SAYS "I DON'T REMEMBER ANYTHING LIKE THAT". THE THERAPIST SAYS "MANY PEOPLE DON'T REMEMBER, WHY DON'T YOU CLOSE YOUR EYES AND TRY TO IMAGINE WHO MIGHT HAVE DONE IT. IMAGINE HOW OLD YOU MIGHT HAVE BEEN". WELL, WE ASK WHAT WOULD THAT GUIDED IMAGINATION DO TO A PERSON WHO DIDN'T HAVE THE EXPERIENCE? AND NOW A NUMBER OF STUDIES HAVE BEEN DONE - NOT ONLY BY US, BUT MANY OTHERS - ARE SHOWING THAT THIS GUIDED IMAGINATION CAN LEAD PEOPLE TO BELIEVE THAT THEY HAD EXPERIENCES THAT THEY DIDN'T HAVE BUT THEY ONLY IMAGINED. DREAM INTERPRETATION... THERE'S ANOTHER ONE. IF YOU'VE EVER BEEN IN THERAPY YOU MAY KNOW THAT PEOPLE SOMETIMES TALK ABOUT THEIR DREAMS. AND THERE'S REALLY NOTHING WRONG WITH DOING THAT AS LONG AS PEOPLE RECOGNIZE THAT DREAM MATERIAL, YOU KNOW, WHAT YOU'RE WORRYING ABOUT DURING THE DAY CAN GET INTO YOUR DREAMS AT NIGHT. SO IF YOU'RE WORRYING ABOUT SOME PARTICULAR EXAM YOU MAY END UP DREAMING THAT YOU'VE SLEPT THROUGH THE ALARM AND MISSED THE EXAM. THERE'S NOTHING WRONG WITH TALKING ABOUT WHAT YOU'RE DREAMING ABOUT. THE PROBLEM COMES IN WITH THE THERAPISTS WHO TAKE THE DREAM MATERIAL AND INTERPRET IT TO MEAN SOMETHING THAT THEY HAVE NO BUSINESS INTERPRETING IT TO MEAN. AND SO WHAT I'M TALKING ABOUT HERE IS, SHE DREAMS ABOUT A SNAKE, THE THERAPIST SAYS "THAT'S A PENIS". SHE DREAMS ABOUT A SERPENT, HE SAYS "THAT'S A PENIS". I HAD A CASE IN THE STATE OF WASHINGTON, A COURT CASE, WHERE THE PATIENT DREAMT ABOUT A CINNAMON ROLL AND THE THERAPIST SAID "THAT'S A PENIS". AND I DIDN'T REALLY UNDERSTAND THIS AND WE HAD TO HAVE THE LAWYER CROSS EXAMINE THE THERAPIST TO FIND OUT WHY EXACTLY DID YOU THINK THAT WAS A PENIS? AND FOR THE THERAPIST IT WAS THE GOO ON THE CINNAMON ROLL THAT LED HER TO THIS CONCLUSION. I'M SORRY, I KNOW YOU'LL NEVER THINK OF CINNAMON ROLLS IN QUITE THE SAME WAY ANYMORE, BUT THAT ACTUALLY HAPPENED. HYPNOSIS... HYPNOSIS IS ANOTHER WAY TO GET PEOPLE TO HAVE FALSE MEMORIES AND FALSE BELIEFS ABOUT A LOT OF THINGS. AND IT WAS VERY INTERESTING FOR ME TO READ ABOUT THE AMOUNT OF HYPNOSIS THAT CHRIS SIZEMORE UNDERWENT IN HER PSYCHOTHERAPY. SO I JUST LEAVE IT TO YOU TO THINK ABOUT WHAT EFFECTS THAT THIS MIGHT HAVE HAD, OR WHAT DIFFERENCE IT MIGHT MAKE IN TERMS OF HOW WE THINK ABOUT THOSE EXPERIENCES. BEING EXPOSED TO OTHER PEOPLES' VERSIONS AND STORIES, THAT CAN LEAD YOU TO THINK THAT SOMETHING LIKE THAT HAPPENED TO YOU AND SEND YOU ON THE ROAD TO A FALSE MEMORY. BEING PLIED WITH FALSE INFORMATION, I'M GOING TO SHOW YOU SOME EXAMPLES OF THAT

- BEING SHOWN DOCTORED PHOTOGRAPHS - THESE ARE ALL WAYS THAT WE CAN GET PEOPLE TO BELIEVE AND REMEMBER THAT THEY HAD EXPERIENCES THAT THEY DIDN'T ACTUALLY HAVE. WELL, MY CRITICS ARE BACK IN FULL FORCE AND THEY SAY, YOU KNOW, MAYBE THESE THINGS REALLY HAPPENED. MAYBE THE PERSON REALLY WAS LOST AND THE PARENT FORGOT ABOUT IT. MAYBE THE PERSON REALLY DID GET BITTEN BY A VICIOUS ANIMAL AND THE PARENT WAS JUST UNAWARE OF IT. MAYBE YOUR SUGGESTIVE INTERVIEWING EXTRACTED A TRUE MEMORY RATHER THAN PLANTING A FALSE ONE. THAT'S A LEGITIMATE COMMENT, AND OUR RESPONSE TO THAT WAS TO SAY, OKAY, LET'S TRY TO PLANT MEMORIES FOR THINGS THAT WOULD BE PRETTY IMPLAUSIBLE OR EVEN IMPOSSIBLE. AND IN THAT VEIN MY GRADUATE STUDENT SHERI BERKOWITZ AND OUR OTHER COLLABORATORS CONVINCED SUBJECTS THAT WHEN THEY WERE A KID ON A CHILDHOOD TRIP TO DISNEY THEY HAD THEIR EAR PERSISTENTLY, DISTURBINGLY, UNCOMFORTABLY LICKED BY THE PLUTO CHARACTER. IT'S NOT HARD TO DO THAT. SOMETHING I THINK WOULD BE RATHER IMPLAUSIBLE BUT SINCE IT WASN'T IMPOSSIBLE THE CRITICS SAID MAYBE IT REALLY HAPPENED. AND SO WE NEEDED SOMETHING THAT WAS IMPOSSIBLE AND THAT WAS THE GENESIS OF OUR STUDY IN WHICH WE TRIED TO MAKE PEOPLE BELIEVE THAT ON A CHILDHOOD TRIP TO DISNEY THEY HAD MET BUGS BUNNY AND EVEN SHAKEN HIS HAND. HOW DID WE DO IT? IN THIS PARTICULAR STUDY WE CREATED A FAKE AD FOR DISNEY, SO YOU SEE BUGS BY THE CASTLE AND THERE'S A LOT OF TEXT THERE. OUR SUBJECTS ARE JUST READING THE AD, THEY HAVE TO EVALUATE THE AD - DO YOU LIKE THE COLORS? DO YOU LIKE THE LAYOUT? THE TEXT OF IT TALKS ABOUT HOW THE HIGHLIGHT OF YOUR TRIP WAS SEEING BUGS BUNNY, HE WAVED YOU OVER, HE SHOOK YOUR HAND, HE'S YOUR HERO

- THE PERFECT END TO THE PERFECT DAY. AFTER EVALUATING THESE ADS, SOMETIME LATER OUR SUBJECTS WERE ASKED ABOUT THEIR OWN EXPERIENCE AT DISNEY: WHICH CHARACTERS DO YOU REMEMBER MEETING? DO YOU REMEMBER MEETING MICKEY MOUSE? DO YOU REMEMBER MEETING MINNIE? DO YOU REMEMBER MEETING THE LITTLE MERMAID? DO YOU REMEMBER MEETING BUGS? AND IN SOME OF THIS WORK MANY OF OUR SUBJECTS CLAIMED THAT THEY'D MET BUGS BUNNY AND WHEN THEY DID THEY PROVIDED DETAILS ABOUT THAT MEETING. THEY SHOOK HIS HAND, THEY TOUCHED HIS TAIL, THEY TOUCHED HIS EAR, THEY HEARD HIM SAY "WHAT'S UP, DOC?" ONE OF THEM SAID HE WAS HOLDING A CARROT. ALL THAT SENSORY DETAIL - WHY IS THAT IMPORTANT? IT'S IMPORTANT BECAUSE WE USE SENSORY DETAIL TO DECIDE IF OUR OWN SUBJECTIVE EXPERIENCE IS A PRODUCT OF A REAL MEMORY OR SOME OTHER PROCESS

- AN IMAGINATION, A DREAM OR SOMETHING ELSE. AND WHEN WE HEAR STORIES FROM OTHER PEOPLE - WHICH WE DO WHEN WE ARE JURORS OR JUDGES, WHEN WE ARE PSYCHOTHERAPISTS, OR WHEN WE'RE A FRIEND JUST LISTENING TO THE STORY OF A FRIEND - WE USE SENSORY DETAIL AS A CLUE THAT WE'RE HEARING AN AUTHENTIC STORY. SO WHAT THIS WORK IS SHOWING IS THAT EVEN THESE FALSE MEMORIES, THESE IMPOSSIBLE FALSE MEMORIES, CAN CONTAIN A LOT OF SENSORY DETAIL. SINCE MOVING TO THE UNIVERSITY OF CALIFORNIA, THE IRVINE CAMPUS WHERE I NOW TEACH, I'VE BECOME INTERESTED IN THE CONSEQUENCES OF HAVING A FALSE MEMORY. NOW I KNOW OUT THERE IN THE REAL WORLD CASES PEOPLE DO THINGS BASED ON FALSE MEMORIES, MEMORIES THAT ARE PROBABLY FALSE, SO HOLLY RAMONA STOPS SPEAKING TO HER FATHER, STARTS PUBLICLY ACCUSING HIM, AND THEN SUES HIM FOR THIS ABUSE. THAT IS AN EXAMPLE OF HOW THE RECOLLECTION IS LEADING TO ACTUAL CHANGES IN HER BEHAVIOR. BUT WE WANTED TO SEE IF WE COULD DEMONSTRATE THIS EXPERIMENTALLY TO SHOW THAT FALSE MEMORIES CAN HAVE REPERCUSSIONS, THEY CAN AFFECT FUTURE BEHAVIORS, INTENTIONS, OR THOUGHTS. AND ONE WAY WE CAME UP WITH TO STUDY THIS IS WHY DON'T WE SEE IF WE CAN PLANT A FALSE MEMORY THAT WHEN YOU WERE A KID YOU GOT SICK EATING A PARTICULAR FOOD? LIKE YOU GOT SICK EATING HARD BOILED EGGS OR YOU GOT SICK EATING DILL PICKLES AND WE'LL SEE IF THEY NOW SHOW AVOIDANCE OF THOSE FOODS IF WE CAN CREATE THIS GETTING SICK MEMORY. HOW DID WE DO IT? AND THIS IS AN EXAMPLE OF PLYING PEOPLE WITH FALSE FEEDBACK WHICH IS ANOTHER COMMON WAY YOU CAN GET PEOPLE TO DEVELOP FALSE MEMORIES. SO WE GATHER DATA FROM OUR SUBJECTS, LOTS OF DATA ABOUT THEIR INTEREST IN FOOD, THEIR HISTORY WITH FOOD, THEIR PERSONALITY AND SO ON. A WEEK LATER THEY COME BACK TO THE LAB AND THEY'RE GOING TO GET A SUGGESTION - WE FED ALL YOUR DATA INTO OUR REALLY SMART COMPUTER PROGRAM, THE COMPUTER HAS REVEALED THAT CERTAIN THINGS HAPPENED TO YOU WHEN YOU WERE A CHILD. HERE'S THE PROFILE FOR JOHNNY JONES. YOU CAN SEE THAT THE COMPUTER HAS DETERMINED THAT

- LOOK AT THE THIRD ITEM, IT'S ITALICIZED FOR YOU BUT NOT FOR THE SUBJECT - "YOU FELT SICK AFTER EATING HARD-BOILED EGGS". IT'S EMBEDDED IN A LIST WITH SOME OTHER ITEMS THAT WE THINK ARE TRUE OF MANY KIDS JUST TO GIVE THE PROFILE AND THE FEEDBACK SOME CREDIBILITY. LIKE YOU DISLIKED SPINACH AS A KID. WE GET PEOPLE TO PROCESS THIS INFORMATION, TO THINK ABOUT IT, TO DWELL A LITTLE BIT ON THE GETTING SICK ASPECTS, AND THEN WE ASK THEM TO IMAGINE THEY'RE AT A PARTY. IT'S AN AFTERNOON SWIM, THEY'VE GONE FOR THE SWIM, THEY'RE NOW HUNGRY. THERE'S A GREAT BIG TABLE WITH LOTS OF THINGS THEY CAN CHOOSE TO EAT. HOW LIKELY ARE YOU TO EAT OR TO PICK UP AND NIBBLE OR EAT EACH OF THESE FOODS? EMBEDDED IN THE LIST ARE OUR TWO CRITICAL ITEMS OF SALTED HARD-BOILED EGGS AND DILL PICKLE SPEARS BECAUSE SOME OF THEM RECEIVED THE SUGGESTION ABOUT THE EGGS AND SOME RECEIVED THE SUGGESTION ABOUT PICKLES. HERE'S WHAT HAPPENED. HERE'S HOW MUCH PEOPLE WANT TO EAT THE TWO FOODS WHEN THEY DIDN'T GET ANY FALSE FEEDBACK AT ALL. A LITTLE MORE INTERESTED IN HAVING THE HARD-BOILED EGG THAN THE DILL PICKLES. HERE'S HOW MUCH PEOPLE WANT TO EAT THE FOODS IF THEY WERE EXPOSED TO OUR MANIPULATION BUT THEY DIDN'T BUY INTO IT, THEY DIDN'T DEVELOP A FALSE MEMORY OR A FALSE BELIEF THAT THEY HAD THIS EXPERIENCE. AND HERE'S HOW MUCH PEOPLE WANT TO EAT THE FOODS IF THEY WERE EXPOSED TO THE SUGGESTIVE MANIPULATION AND THEY FELL FOR IT. THEY DON'T WANT TO EAT THOSE FOODS AS MUCH. THIS WAS A PRETTY EXCITING RESULT FOR ME BECAUSE, YOU KNOW, ONE OF THE GREAT MOMENTS IS WHEN GRADUATE STUDENTS COME IN WITH THE ANALYSES OF THE DATA AFTER ALL THE SUBJECTS ARE RUN, YOU'VE PROBABLY BEEN PARTICIPATING IN THESE EXPERIMENTS AS SUBJECTS AND SERVING A VALUABLE SERVICE TO THE FIELD OF PSYCHOLOGY IN DOING SO - HOPEFULLY IT'S A LEARNING EXPERIENCE FOR YOU. BUT WHEN THE GRAD STUDENTS BROUGHT ME THESE DATA I THOUGHT, "GEE, THIS IS FANTASTIC. WE'RE GETTING PEOPLE TO SAY THEY WOULD AVOID THESE FOODS AFTER THE SUGGESTIVE MANIPULATION. IF WE COULD DO THIS WITH A FATTENING FOOD... THINK ABOUT IT. WE COULD BE ON THE BRINK OF A NEW DIETING TECHNIQUE. AND SO AFTER SHOWING THAT IT WAS POSSIBLE TO PLANT A FALSE MEMORY THAT YOU GOT SICK ON A PARTICULAR FOOD AND IT HAD THESE CONSEQUENCES, WE TRIED IT WITH A FATTENING FOOD: STRAWBERRY ICE CREAM. SAME KIND OF METHODOLOGY - GETTING DATA FROM SUBJECTS, A WEEK LATER THEY COME BACK, A REALLY SMART COMPUTER HAS DETERMINED THAT CERTAIN THINGS HAPPENED TO YOU AS A CHILD. THEY GET THIS INDIVIDUALLY TAILORED PROFILE

- THEY THINK IT'S TAILORED TO THEM BUT OF COURSE MANY OTHER PEOPLE ARE GETTING THE SAME ONE. THE CRITICAL ITEM, "YOU FELT ILL AFTER EATING STRAWBERRY ICE CREAM". WE GET YOU TO ELABORATE ON THIS EXPERIENCE, TELLING US A LITTLE BIT ABOUT WHO YOU WOULD HAVE BEEN WITH, HOW IT WOULD HAVE HAPPENED IF YOU REMEMBER IT OR MIGHT HAVE HAPPENED IF YOU CAN'T QUITE REMEMBER IT, HOW IT WOULD HAVE MADE YOU FEEL. AND THEN LATER ON PEOPLE HAVE A CHANCE TO TELL US WHAT THEY WANT TO EAT AND WE LOOK TO SEE HOW MUCH THEY WANT TO EAT STRAWBERRY ICE CREAM. HERE'S HOW MUCH PEOPLE WANT TO EAT STRAWBERRY ICE CREAM IF THEY HAVEN'T GOTTEN ANY FALSE FEEDBACK. HERE'S HOW MUCH THEY WANT TO EAT IT IF THEY WERE EXPOSED TO THE MANIPULATION AND THEY DIDN'T FALL FOR IT. AND HERE'S HOW MUCH THEY WANT TO EAT IT IF THEY WERE EXPOSED TO THAT MANIPULATION AND THEY FELL FOR IT. THEY DON'T WANT TO EAT IT AS MUCH. NOW I WAS QUITE EXCITED ABOUT THIS RESULT, IN FACT WE MANAGED TO PUBLISH IT IN THE PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES WHICH IS A PRETTY IMPORTANT JOURNAL BECAUSE IT IS THE JOURNAL OF THE UNITED STATES NATIONAL ACADEMY OF SCIENCES. AND FROM THERE IT GOT A LOT OF ATTENTION. MAYBE BECAUSE IT WAS A FATTENING FOOD AND WE HAD SHOWN THAT WE COULD GET PEOPLE TO TELL US THEY DIDN'T WANT TO EAT THIS FOOD AS MUCH. BUT ONE OF THE THINGS THAT HAPPENED IS OUR WEEKLY NEWS MAGAZINE, TIME MAGAZINE, DEVOTED AN ENTIRE PAGE TO THE MENTAL DIET DESCRIBING THIS PARTICULAR STUDY AND I WAS REALLY HAPPY TO SAY THAT THEY WERE VERY RESPONSIBLE AND PUBLISHED A CAVEAT AFTER AN INTERVIEW BECAUSE I SAID TO THEM, YOU KNOW, BEFORE PEOPLE GET TOO EXCITED ABOUT THIS, WE NEED TO LEARN A LITTLE BIT ABOUT WHETHER THESE EFFECTS ARE EVEN GOING TO LAST. WE CAN SHOW THAT PEOPLE TELL US THEY WANT TO AVOID THE FOOD SHORTLY AFTER THEY'VE GOTTEN THE SUGGESTION, BUT IF THIS IS REALLY GOING TO WORK AS A DIETING TECHNIQUE WE NEED TO SHOW THAT THESE EFFECTS LAST AND WE HADN'T YET SHOWN THAT. THE NEW YORK TIMES MAGAZINE AT THE END OF THE YEAR PUBLISHED THE 78 MOST INNOVATIVE SCIENTIFIC IDEAS OF THE YEAR THAT THEY HAD HEARD OF AND THERE WAS THE FALSE MEMORY DIET THAT WAS REALLY EXCITING FOR US TOO. AND THEY TOO PUBLISHED TWO CAVEATS - WE DON'T KNOW HOW LONG THESE EFFECTS ARE GOING TO LAST AND WE ALSO DON'T KNOW WHETHER OR NOT THE MANIPULATION IS GOING TO BE STRONG ENOUGH THAT THE INDIVIDUAL WILL BE ABLE TO WITHSTAND AND AVOID THE FOOD IF YOU PUT AN ACTUAL BOWL OF STRAWBERRY ICE CREAM RIGHT IN FRONT OF THEM. WE DIDN'T KNOW THEN, BUT WE DO NOW. BECAUSE OF SOME WORK OF MY COLLABORATORS - DAN BERNSTEIN IN THE MIDDLE THERE, MY LONGTIME COLLABORATOR ON ALL THESE FOOD STUDIES

- ALSO WITH KARA LAINIE, MY FORMER GRADUATE STUDENT WHO IS NOW TEACHING AT THE UNIVERSITY OF LEICESTER, AND ELKA GERAERTS WHO DID THIS STUDY IN THE NETHERLANDS ON HOW LONG WILL THESE EFFECTS LAST. AND BASICALLY THE BOTTOM LINE IS THAT USING EGG SALAD SANDWICHES

- I'M GOING TO ZIP THROUGH THIS BECAUSE YOU ALREADY KNOW THE METHODOLOGY

- FALSE FEEDBACK FROM PEOPLE - DATA FROM SUBJECTS, THEY COME BACK A WEEK LATER, THE REALLY SMART COMPUTER TELLS US THESE THINGS HAPPENED TO YOU. YOU GOT SICK EATING EGG SALAD. AND NOW THEY HAVE AN ACTUAL CHANCE TO EAT SANDWICHES - THEY CAN CHOOSE FROM FIVE DIFFERENT SANDWICHES THAT ARE LAID OUT BEFORE THEM - AND WE CAN SEE ARE THEY ACTUALLY EATING FEWER SANDWICHES, AND THEN FOUR MONTHS LATER THEY COME BACK TO THE LAB FOR A SEEMINGLY UNRELATED STUDY, MORE CHANCE TO EAT SANDWICHES

- HOW MANY EGG SALAD SANDWICHES DO THEY ACTUALLY EAT? I'LL JUST GET TO THE SANDWICHES EATEN, SKIPPING OVER SOME OF THIS EARLIER DATA. HERE'S HOW MANY SANDWICHES PEOPLE ATE IN SESSION #2 RIGHT AFTER THE MANIPULATION. AND THEN THE SESSION MONTHS LATER WITHOUT ANY FEEDBACK AT ALL. THEY EAT AN AVERAGE OF THAT MANY EGG SALAD SANDWICHES. HERE'S HOW MANY THEY EAT IF THEY WERE EXPOSED TO THE MANIPULATION BUT THEY DIDN'T BUY INTO IT, THEY DIDN'T DEVELOP A FALSE MEMORY. IMMEDIATELY AFTERWARDS EVEN THE MERE EXPOSURE IS AFFECTING THEM. BUT BY SEVERAL MONTHS LATER THEY'RE EATING AS MANY EGG SALAD SANDWICHES AS THE CONTROL GROUP. AND HERE'S HOW MANY EGG SALAD SANDWICHES PEOPLE EAT AFTER THEY HAVE DEVELOPED A FALSE MEMORY ABOUT GETTING SICK ON EGG SALAD. THEY DON'T EAT AS MANY RIGHT AWAY AND THEY ALSO DON'T EAT AS MANY MONTHS LATER. I ALSO WANT TO MENTION TO YOU ANOTHER STUDY DONE BY SCOBORIA, MAZZONI, AND JARRY GOING ON AT THE SAME TIME THAT TELLS A SOMEWHAT SIMILAR STORY. THEY PLANTED FALSE MEMORIES THAT YOU GOT SICK EATING PEACH YOGURT. AND THEN A WEEK LATER THEY GAVE PEOPLE A CHANCE TO EAT CERTAIN FOODS AND THEY WEIGHED THE CONTAINERS OF PEACH YOGURT TO SEE HOW MUCH WAS GONE. AND AFTER MAKING PEOPLE BELIEVE THEY GOT SICK EATING PEACH YOGURT PEOPLE DON'T EAT AS MUCH PEACH YOGURT. OF COURSE WE GOT PEOPLE TO BELIEVE THEY GOT SICK EATING A PARTICULAR FOOD, THEY AVOIDED THE FOOD, NEXT THING WE DID IN THIS PROGRAM OF RESEARCH IS TO TRY TO SEE IF WE COULD DO THE OPPOSITE. COULD WE PLANT A WARM, FUZZY MEMORY ABOUT A HEALTHY FOOD AND THEN SHOW THAT PEOPLE WOULD WANT TO EAT THAT FOOD MORE? WE DID IT WITH ASPARAGUS - THE SAME KIND OF SITUATION WHERE WE GAVE PEOPLE FALSE FEEDBACK THAT WHEN YOU WERE A KID YOU ABSOLUTELY LOVED ASPARAGUS THE FIRST TIME YOU TRIED IT. WE HAVE PEOPLE DWELL ON THIS WARM, HAPPY, FUZZY EXPERIENCE WITH ASPARAGUS, THEN THEY GO TO A RESTAURANT - WE ASK THEM TO IMAGINE THEY'RE AT A RESTAURANT FOR A SPECIAL OCCASION AND HOW LIKELY ARE YOU TO ORDER THESE VARIOUS FOODS INCLUDING SAUTEED ASPARAGUS SPEARS. AND WE FOUND IN FACT THAT WE COULD CREATE FALSE MEMORIES OF LOVING THE FOOD. WE THEN SHOWED THAT PEOPLE... OF LOVING THE FOOD THEY THEN EMBRACED THE FOOD MORE, THEY SAID THEY WANTED TO EAT IT. IT LOOKS LIKE WE'RE MAKING JUST THE SIGHT OF ASPARAGUS OR THE THOUGHT OF ASPARAGUS SEEM MORE APPETIZING, MORE APPEALING, LESS DISGUSTING TO PEOPLE. AND IN RECENT WORK WE SHOWED THAT PEOPLE WILL ACTUALLY ORDER MORE ASPARAGUS WHEN GIVEN THE CHANCE TO ORDER FOOD THAT THEY THINK THEY'RE GOING TO GET. IF I COULD GET MY HANDS ON ONE OF OUR FORMER PRESIDENTS, THE OLDER GEORGE BUSH, HERE'S WHAT I'D LIKE TO DO WITH HIM. HE'S FAMOUS FOR SAYING: THAT'S A KIND OF A GOOD ATTITUDE I THINK. WELL, WE BELIEVE IF WE COULD GET OUR HANDS ON THE FORMER PRESIDENT AND PLY HIM WITH OUR SUGGESTIVE MANIPULATION IT WOULD BE JUST A MATTER OF TIME BEFORE HE'D BE EATING BROCCOLI AND IT WOULD BE ONE OF HIS VERY FAVORITE VEGGIES. THANK YOU FOR LISTENING. I'M GOING TO STOP NOW AND LET YOU ASK SOME QUESTIONS.

(APPLAUSE) UM, IN THE LOST IN THE MALL STUDIES WE USED THE TECHNIQUE OF SAYING WE TALKED TO YOUR MOTHER, YOUR FATHER, OR YOUR OLDER SIBLING, AND WE PARTLY DID THAT BECAUSE WE THINK THAT SOURCE IS SOMEWHAT AUTHORITATIVE, SOMEBODY WHO WAS OLDER THAN YOU, WOULD HAVE BEEN PRESENT DURING YOUR CHILDHOOD YEARS, AND WE THINK THAT IS PART OF WHY THAT WORKED AS WELL AS IT DID. SO I THINK IT MIGHT BE A LITTLE EASIER IF YOU ARE CLAIMING THE INFORMATION COMES FROM SOMEBODY WHO IS CLOSE TO YOU AND WHO IS LIKELY TO BE KNOWLEDGEABLE. WELL, THERE ARE SOME STUDIES THAT ARE NOW TRYING TO SEE WHETHER THERE'S ANYTHING YOU CAN DO TO TELL THE DIFFERENCE BETWEEN TRUE MEMORIES AND FALSE MEMORIES. SO, FOR EXAMPLE, LOOKING AT THE BEHAVIOR THAT PEOPLE EXPRESS WHEN THEY'RE EXPRESSING A TRUE MEMORY VERSUS EXPRESSING A FALSE MEMORY. OR EVEN TO DO NEURAL IMAGING, FUNCTIONAL MRI TO SEE IF THEY'RE UTTERING A TRUE MEMORY, ONE THAT REFLECTS A PERCEPTION, VERSUS A FALSE MEMORY - SOMETHING THEY LEARNED ABOUT LATER. CAN YOU SEE ANY DIFFERENCES IN BRAIN ACTIVATION? AND I WILL TELL YOU THAT SOMETIMES THESE STUDIES SHOW STATISTICAL DIFFERENCES. A GROUP OF TRUE MEMORIES MIGHT LOOK A LITTLE DIFFERENT THAN A GROUP OF FALSE MEMORIES. THE TRUE MEMORIES MIGHT HAVE A LITTLE MORE SENSORY DETAIL THAN THE FALSE MEMORIES AS A GROUP. BUT AS I TRIED TO SHOW YOU, WE ARE JUST A LONG, LONG WAY FROM BEING ABLE TO TAKE A SINGLE MEMORY AND ACCURATELY CLASSIFY IT BASED ON THESE CRITERIA. BECAUSE EVEN FALSE MEMORIES - AND THIS IS PROBABLY THE ONE MOST IMPORTANT LESSON I THINK I'VE LEARNED FROM MY RESEARCH - IS JUST BECAUSE IT'S DETAILED AND JUST BECAUSE A PERSON IS CONFIDENT ABOUT IT AND JUST BECAUSE THEY EXPRESS IT WITH EMOTION DOESN'T MEAN IT REALLY HAPPENED. BECAUSE FALSE MEMORIES CAN HAVE THOSE CHARACTERISTICS TOO. IT'S CERTAINLY POSSIBLE SOME OF THESE PEOPLE GOT LOST ON SOME OCCASION, BUT THE FALSE MEMORY THAT WE PLANTED WITH THE HELP OF THE SUBJECT'S FAMILY MEMBERS WAS A VERY SPECIFIC ONE. SO YOU WERE LOST IN THE SUCH AND SUCH MALL WHEN YOU WERE SIX YEARS OLD. YOU WERE LAST SEEN BY THE PET STORE. LATER, AFTER A LONG PERIOD OF TIME, YOU WERE RESCUED BY AN OLDER PERSON AND REUNITED WITH THE FAMILY. IT'S A VERY SPECIFIC FALSE MEMORY. NOW IT MIGHT BE YOU WERE LOST SOMETIME SOMEWHERE, BUT WHAT WE'RE TRYING TO GET PEOPLE TO REMEMBER IS THIS VERY SPECIFIC THING THAT THE PARENT HAS HELPED US CONSTRUCT FROM SCRATCH. I BELIEVE THAT THE BEST THING TO DO IF YOU'VE WITNESSED A CRIME IS TO SIT DOWN AND WRITE OUT EVERYTHING YOU CAN REMEMBER BEFORE ANYBODY TALKS TO YOU OR BEFORE YOU HEAR ANY OTHER WITNESS TALK ABOUT WHAT THEY SAW. IN FACT, IN SOME BANKS WHICH HAVE A HIGH RISK OF BEING ROBBED, TELLERS ARE TAUGHT TO DO EXACTLY THAT. SO WHAT IS THAT DOING? YOU'RE PRODUCING A REPORT AS EARLY AFTER THE EVENT AS POSSIBLE - THAT'S GOOD FOR MEMORY - AND FREEZING THAT REPORT, COMMITTING IT TO PAPER IS GOING TO HELP PROTECT IT TO SOME EXTENT FROM SUBSEQUENT MISINFORMATION. WE'RE INTERESTED TO SEE WHAT OTHER THINGS YOU CAN DO WITH THIS TECHNIQUE. I MEAN, WHY NOT TRY TO TURN PEOPLE OFF OF OTHER THINGS AND RIGHT NOW WE HAVE SOME NEW DATA WHERE WE CONVINCE SOME OF THEM THEY GOT SICK DRINKING VODKA AND OTHERS THEY GOT SICK DRINKING RUM. AND NOW WE'RE FINDING THAT THEY SEEM TO WANT TO AVOID THE VODKA OR RUM DRINK. SO YOU CAN SEE HOW IT MIGHT BE HELPFUL THERE. I HADN'T THOUGHT ABOUT COMPLETELY DIFFERENT TYPES OF BEHAVIORS THAT ARE RISKY OR DANGEROUS, OF THE SORT YOU'RE SUGGESTING, BUT THAT IS ACTUALLY A GOOD IDEA THAT IF PEOPLE ARE PRONE TO RECKLESS DRIVING YOU MIGHT BE ABLE TO PLANT A FALSE MEMORY ABOUT BAD DRIVING OR RECKLESS DRIVING AND MAYBE EVEN SEE THAT PEOPLE MIGHT AVOID THAT KIND OF BEHAVIOR AND THAT WOULD BE IMPORTANT AND USEFUL FOR SOCIETY FOR SOMEBODY TO DEMONSTRATE THAT. PUTTING THE IDEA INTO PRACTICE IS GOING TO BE A LITTLE BIT TRICKY BECAUSE ALTHOUGH WHEN I PUBLISH SOME OF THESE RESULTS I DID ACTUALLY GET EMAILS AND CALLS FROM PEOPLE WHO WANT TO KNOW IF THEY COULD COME TO THE LAB AND I WOULD PLANT A FALSE MEMORY IN THEM AND GET THEM DISINTERESTED IN SOME FATTENING FOOD THAT THEY WERE EATING TOO MUCH OF IT'S NOT GOING TO WORK IF YOU'RE KNOWLEDGEABLE. I'M NOT GOING TO BE ABLE TO PLANT A FALSE MEMORY IN YOU IF YOU KNOW THAT'S WHAT I'M TRYING TO DO. YOU NEED THIS KIND OF DECEPTION. NOW THAT DOESN'T PREVENT A PARENT FROM TRYING TO DO THIS WITH THEIR OVERWEIGHT OR OBESE TEENAGER OR OLDER CHILD. WHICH IS SOMETHING THAT I ONCE SUGGESTED DURING AN INTERVIEW TO WHICH MY CRITICS CAME BACK AND SAID "NOW SHE'S SUGGESTING PARENTS GO AROUND LYING TO THEIR CHILDREN. SHE'S DISGUSTING". AND MY REACTION TO THAT IS, GIMME A BREAK. HOW ABOUT THE TOOTH FAIRY AND SANTA CLAUS - YOU'VE BEEN LYING TO YOUR KIDS FOR YEARS.

(LAUGHTER) WELL, DO I BELIEVE IN REPRESSED MEMORY? UM, WHAT I BELIEVE IS THAT PEOPLE CAN GO THROUGH LIFE, CAN NOT THINK ABOUT SOMETHING FOR A LONG TIME

- EVEN SOMETHING REALLY UNPLEASANT - AND BE REMINDED OF IT LATER. THAT HAPPENS IN PSYCHOLOGY. IN THE FIELD OF MEMORY WE HAVE THE CONCEPT OF RETRIEVAL CUES

- SOMETHING THAT IS A CUE CAN TRIGGER A MEMORY THAT WE HAVEN'T THOUGHT ABOUT FOR A LONG TIME. BUT WHEN IT GETS TO THE SUBJECT OF REPRESSION, IT IS SUPPOSED TO BE SOMETHING THAT IS TOO EXTREME, LIKE HOLLY'S BANISHING - HER CLAIM THAT SHE BANISHED TEN YEARS OF RAPES, OR ELEVEN YEARS, INTO THE UNCONSCIOUS BY SOME PROCESS OTHER THAN ORDINARY FORGETTING AND REMEMBERING. THERE IS NO CREDIBLE SCIENTIFIC SUPPORT FOR THAT NOTION. DOESN'T MEAN THERE WON'T BE SOME DAY IN THE FUTURE, THERE JUST ISN'T TODAY AND FOR THAT REASON I DON'T THINK WE SHOULD BE PROSECUTING PEOPLE BASED ON THESE CLAIMS OR SUING THEM CIVILLY AND DEPRIVING THEM OF WHAT MIGHT BE RIGHTFULLY THEIRS. OR WRECKING FAMILIES OR ANYTHING ELSE THAT'S BEEN GOING ON IN OUR SOCIETY AS A RESULT OF THESE MISGUIDED BELIEFS. I REALLY BELIEVE THAT WE ARE ALL SUSCEPTIBLE. I KNOW I AM BECAUSE WHEN I BEGAN THIS LINE OF WORK PERIODICALLY PEOPLE ARE PRANKSTERS, YOU KNOW, MY COLLEAGUES AND FRIENDS TRY TO PLAY TRICKS ON ME AND GET ME TO REMEMBER THINGS THAT DIDN'T HAPPEN AND SOMETIMES THEY SUCCEED. WE'RE ALL TO SOME EXTENT SUSCEPTIBLE. BUT THE WORK ON INDIVIDUAL DIFFERENCES IN THIS AREA HAS SHOWN THAT SOME PEOPLE ARE MORE SUSCEPTIBLE THAN OTHERS. SO TWO THINGS THAT WE KNOW: ONE IS, ARE YOU SOMEBODY WHO HAS LAPSES IN MEMORY AND ATTENTION? DO YOU FREQUENTLY FIND YOURSELF ON YOUR WAY TO SCHOOL OR ON YOUR WAY TO WORK AND SUDDENLY YOU'RE THERE AND YOU'VE SPACED OUT AND HAVE NO RECOLLECTION REALLY OF THE ROUTE? DO YOU SOMETIMES OR FREQUENTLY NOT REMEMBER WHETHER YOU DID SOMETHING OR JUST THOUGHT ABOUT DOING THAT THING? I HAVE THAT WITH MY GARAGE DOOR WHEN I PULL OUT AND, YOU KNOW, I HAVE TO GO BACK EVERY SO OFTEN AND MAKE SURE I REALLY CLOSED IT. IF YOU ARE SOMEBODY WHO HAS THOSE KINDS OF LAPSES IN MEMORY AND ATTENTION YOU ARE MORE SUSCEPTIBLE TO THESE INFLUENCES. THE CORRELATIONS ARE ON THE ORDER OF ABOUT .3 OR .32, NOT GREAT BUT STATISTICALLY SIGNIFICANT. AND NOW IN SOME RECENT WORK WITH MY CHINESE COLLABORATORS WE'RE FINDING THAT YOUR SCORE ON A STANDARD INTELLIGENCE TEST PREDICTS SUSCEPTIBILITY TO MISINFORMATION. SO IF YOU TEND TO SCORE HIGHER ON A STANDARD INTELLIGENCE TEST YOU ARE MORE RESISTANT TO MISINFORMATION, WITH CORRELATIONS ON THE ORDER OF MAYBE .3, .32, .34. AT FIRST WHEN I STARTED SPEAKING OUT ABOUT WHAT I SAW AS A MAJOR PROBLEM IN OUR SOCIETY, PEOPLE HAD THIS REPRESSED MEMORY CONTROVERSY... THOUSANDS AND THOUSANDS OF PEOPLE LIKE HOLLY RAMONA WHO ENDED UP IN SUGGESTIVE PSYCHOTHERAPY - HERS EVEN INVOLVED A SO-CALLED TRUTH SERUM OF SODIUM AMYTAL WHICH IS NOT A TRUTH SERUM AT ALL BUT HELPED TO CONVINCE HER THAT THESE PRODUCTS OF HER UTTERANCES WERE ACTUAL MEMORIES. WHEN I STARTED SPEAKING OUT ABOUT THESE CASES THE THERAPISTS WERE VERY THREATENED. THEY KNEW THAT I WAS SPEAKING TO THEM. THEY BELIEVED THE STORIES THAT THEY WERE HEARING - THEY EVEN PARTICIPATED IN THE CREATION OF THE STORIES THEY WERE GETTING EVEN IF THEY WEREN'T AWARE THEY WERE DOING THAT. THEY WERE USING GUIDED IMAGINATION, DREAM INTERPRETATION AND HYPNOSIS AND SODIUM AMYTAL AND OTHER TECHNIQUES DESIGNED TO SUPPOSEDLY UNEARTH TRAUMA MEMORIES BUT IN THE PROCESS WERE LEADING PEOPLE TO FALSE MEMORIES THAT WERE RUINING FAMILIES ALL THROUGH NORTH AMERICA AND THEN THE WAVE OF THIS SPREAD TO BRITAIN, OTHER PARTS OF EUROPE, NEW ZEALAND, AUSTRALIA, AND OTHER PARTS OF THE WORLD. AND THE THERAPISTS WERE PRETTY ANGRY HEARING THIS MESSAGE OF SKEPTICISM, BUT EVENTUALLY, EVENTUALLY WITH ENOUGH VOICES THEY HAD TO START LISTENING AND PROBABLY THE THING THAT MADE THEM START LISTENING THE MOST IS WHEN THESE INDIVIDUALS, HUNDREDS OF THEM, WOKE UP ONE DAY AND STARTED TO REALIZE THEIR MEMORIES WERE FALSE. AS A SCIENTIST WHO'S STUDIED MEMORY FOR DECADES THAT'S A VERY FASCINATING PHENOMENON. HOW DO YOU REALIZE YOUR MEMORY IS FALSE? IN SOME CASES THEIR INSURANCE RAN OUT... SO THEY NO LONGER HAD ANYBODY TO PAY FOR THE INTERACTION WITH THE SUGGESTIVE PSYCHOTHERAPIST. THEY REALIZED THEIR MEMORIES ARE FALSE, MANY OF THEM REUNITED WITH THEIR FAMILY, AND A FRACTION OF THEM SUED THEIR FORMER THERAPIST FOR PLANTING FALSE MEMORIES. THE LARGEST SETTLEMENT WAS PATRICIA BURGESS WHO SUED A PSYCHIATRIST AND A HOSPITAL IN THE CITY OF CHICAGO AND AFTER SHE AND HER TWO CHILDREN WERE DIAGNOSED WITH MULTIPLE PERSONALITY DISORDER, HOSPITALIZED FOR YEARS, SHE SUED FOR PLANTING FALSE MEMORIES AND RECEIVED A SETTLEMENT OF 10.6 MILLION DOLLARS... THE LARGEST OF THE SETTLEMENTS IN THESE RETRACTIVE CASES. THAT'S WHEN THE PSYCHOTHERAPISTS STARTED PAYING ATTENTION. WELL, YOU KNOW, GEE... PHOBIAS - MAYBE. I MEAN, IF YOU HAVE A SPIDER PHOBIA AND I CONVINCE YOU THAT YOU HAD A WARM, FUZZY EXPERIENCE WITH A SPIDER - IT'S A LITTLE HARD TO IMAGINE ON MY FEET HOW I WOULD DO THAT, BUT IN PRINCIPLE COULD I, THROUGH THIS MENTAL SUGGESTION, GET YOU TO NOT FEEL SO AFRAID OF SPIDERS OR HEIGHTS OR WHATEVER YOUR PHOBIA IS? IN PRINCIPLE. SOMEBODY WOULD NEED TO WORK OUT THE DETAILS AND ACTUALLY TEST WHETHER IT COULD BE DONE. AND AS FOR EATING DISORDERS... MAYBE. MAYBE. IS THAT NOT WHAT HYPNOSIS DOES, IS IMPLANT MEMORIES, IMPLANT SUGGESTION? WELL, HYPNOSIS DOES, ESPECIALLY IF YOU'RE HIGHLY HYPNOTIZABLE, YOU'RE IN A MORE SUGGESTIBLE STATE WHERE IT'S VERY EASY TO SUGGEST THINGS TO YOU AND YOU WILL ADOPT THEM. AND WHETHER THEY'RE BELIEFS OR MEMORIES OR GETTING YOU TO BEHAVE IN PARTICULAR WAYS, GETTING YOU TO LEARN RELAXATION MAYBE CAN HELP YOU LOSE WEIGHT AND CONTROL YOUR ANXIETY, BUT FOR ATTEMPTING TO RETRIEVE ALLEGEDLY REPRESSED MEMORIES

- DANGEROUS. ACTUALLY YOUNG CHILDREN ARE MORE SUSCEPTIBLE TO THESE KINDS OF CONTAMINATIONS THAN OLDER CHILDREN OR ADULTS. SO THERE IS A FAIR AMOUNT OF THIS TYPE OF WORK WITH CHILDREN BETWEEN THE AGES OF THREE AND SIX AND THEY ARE ESPECIALLY SUSCEPTIBLE. I THINK ALSO OLDER ADULTS, THAT IS, 75-YEAR-OLDS, ARE MORE SUSCEPTIBLE TO MEMORY CONTAMINATION TOO THAN YOUNG ADULTS. THERE'S KIND OF THIS INVERTED "U" FUNCTION WITH AGE. SO IF YOU GAVE ME A CHOICE BETWEEN WANTING TO DO IT WITH A 5-YEAR-OLD OR A 75-YEAR-OLD I WOULD PROBABLY PUT MY MONEY ON EASIER WITH THE 5-YEAR-OLD. YOU KNOW, I THINK THE POTENTIAL FOR ABUSE IS DEFINITELY THERE. I HAVE A LITTLE BIT OF UNEASE ABOUT THE FACT THAT CHARLES MORGAN AND OUR COLLABORATORS, WE ARE ABOUT TO PUBLISH THE RESULTS WITH THE SOLDIERS AT SURVIVAL SCHOOL. BECAUSE LOOK HOW EASY IT WAS AFTER ONE HOUR TO GET PEOPLE TO WRONGLY IDENTIFY A PERSON WHO HAD COMMITTED A LOT OF AGGRESSIVE INTERROGATION WITH THEM FOR 30 MINUTES. I THINK IT IS CONCEIVABLE THAT SOMEBODY COULD TAKE THIS SCIENCE AND USE IT TO DIVERT SOMEBODY'S MEMORY AWAY FROM AN ACTUAL PERPETRATOR AND THEREBY IMPEDE JUSTICE NOT INCREASE JUSTICE WHICH IS WHAT I'M INTERESTED IN DOING. AND I DON'T KNOW WHAT WE DO ABOUT THAT, BUT I WORRY. AND THAT'S ONE SPECIFIC EXAMPLE OF HOW AND WHY ONE PERHAPS SHOULD WORRY. BUT I DO IN GENERAL BELIEVE THAT KNOWLEDGE IS GENERALLY GOOD, THAT THE MORE WE KNOW ABOUT HOW THE MIND WORKS THE BETTER WE'RE GOING TO BE ABLE TO PROTECT OURSELVES AND OTHERS. AND TO MAYBE FIGURE OUT WHAT IS GOING ON IN SPECIFIC CASES SO THAT WE AREN'T CONVICTING THE WRONG PEOPLE AND AREN'T ARRIVING AT JUDGMENTS IN CIVIL CASES THAT ARE UNFAIR TO PEOPLE. WE'VE TRIED TO TAKE AWAY MEMORIES AND IT'S A LOT HARDER TO DO. ONE THING YOU CAN DO IS SUBSTITUTE ONE MEMORY FOR ANOTHER. SO WHEN I MAKE A PERSON WHO SAW THE CAR GO THROUGH A STOP SIGN BELIEVE IT WAS A YIELD SIGN, REMEMBER THE YIELD SIGN AND CHOOSE THE YIELD SIGN, OBVIOUSLY I'VE IN SOME SENSE WEAKENED THEIR MEMORY FOR THE STOP SIGN, OR TAKEN IT AWAY, BY SUBSTITUTING SOMETHING ELSE. OR WHEN I MAKE YOU BELIEVE THAT YOU SAW A DIFFERENT PERSON AND YOU ULTIMATELY IDENTIFY THAT DIFFERENT PERSON - YOU'RE OBVIOUSLY WEAKENING AN ORIGINAL MEMORY AND IN THAT SENSE TAKING IT AWAY. BUT IT'S A LITTLE HARDER TO DIRECTLY GET PEOPLE TO JUST REMEMBER SOMETHING DIDN'T HAPPEN. AND A FEW EFFORTS THAT I HAVE ENGAGED IN WITH SOME COLLABORATORS HAVE LED TO MIXED SUCCESS IN THAT AREA. OH, YES. I DEFINITELY DO. ANOTHER PART OF THE TALK I WOULD HAVE SHOWN YOU SOME OF OUR DATA ON CULTURAL MEMORIES WHERE WE USED DOCTORED PHOTOGRAPHS. IN FACT YOU SAW THAT ICONIC IMAGE OF THE LONE STUDENT IN FRONT OF THE TANKS AT TIANANMEN SQUARE THAT WAS TAKEN DURING JUNE OF 1989 AT THE MASSACRE AT TIANANMEN SQUARE. WE DOCTORED THAT PHOTOGRAPH AND PUT CROWDS AROUND THE SCENE AND EVEN A SINGLE VIEWING OF A DOCTORED PHOTOGRAPH CHANGED WHAT PEOPLE REMEMBERED ABOUT THAT VERY PUBLIC EVENT. SO I THINK THROUGH DOCTORED IMAGES AND MEDIA IT'S CERTAINLY POSSIBLE TO CHANGE PEOPLES' MEMORIES FOR A VARIETY OF EVENTS, COLLECTIVE EVENTS, THAT MAKE UP OUR CULTURAL MEMORY. IT'S A QUESTION THAT I THINK NEEDS TO BE ASKED. I MEAN, WHY WOULD DARWIN, GOD, WHOEVER YOU BELIEVE, YOU KNOW, BUILD THIS STRUCTURE, HAVE BUILT US A MEMORY THAT IS SO MALLEABLE? AND I THINK ONE WAY TO ANSWER THAT QUESTION IS TO THINK, WELL, WHAT IT ALLOWS US TO DO THAT'S GOOD IS SOMETIMES ERRORS CREEP INTO OUR MEMORY NATURALLY OR THROUGH OUR OWN THOUGHTS AND INFERENCES, AND WHEN WE'RE EXPOSED TO CORRECT INFORMATION WE CAN CORRECT THE ERRORS IN OUR MEMORY. SO THE SAME PROCESS BY WHICH MEMORY IS MALLEABLE AND I CAN LEAD YOU ASTRAY ALSO ALLOWS US TO CORRECT MEMORIES. BUT I ONCE WROTE A BOOK IN WHICH I POSED THIS QUESTION TO READERS. I SAID IMAGINE THAT THERE WERE A WORLD WHERE YOU COULD GO TO A MEMORY DOCTOR AND HAVE YOUR MEMORIES BE MODIFIED. WHAT WOULD PEOPLE GO TO THE DOCTOR FOR? MAYBE TO WIPE OUT SOME UNPLEASANT MEMORIES THAT WERE DISTURBING YOU. MAYBE TO DISTORT YOUR MEMORIES IN A WAY THAT MAKES YOU FEEL BETTER ABOUT YOURSELF. WELL, WE IN FACT ALREADY DO THAT. WE HAVE PRESTIGE ENHANCING MEMORIES. WE HAVE MEMORIES THAT NATURALLY DISTORT. PEOPLE REMEMBER THEIR GRADES WERE BETTER THAN THEY WERE. THEY REMEMBER THEY GAVE MORE TO CHARITY THAN THEY REALLY DID. THEY REMEMBER THEIR KIDS WALKED AND TALKED AT EARLIER AGES THAN THEY REALLY DID. THEY REMEMBER THEY VOTED IN ELECTIONS THAT THEY DIDN'T VOTE IN. ALL OF THESE ARE PRESTIGE ENHANCING MEMORIES THAT ALLOW US TO FEEL BETTER ABOUT OURSELVES. AND INTERESTINGLY, CLINICALLY DEPRESSED PEOPLE DON'T DO THAT. AND THAT'S WHY IT'S SOMETIMES SAID THEY ARE SADDER BUT WISER. YOU KNOW, I'M NOT THINKING OF ANYTHING IN MY IMMEDIATE EXPERIENCE, I MEAN, EVEN IF I COULDN'T, BECAUSE OF HUMAN SUBJECTS COMMITTEES, PLANT A MEMORY OF SEXUAL ABUSE IN ORDER TO SEE WHAT THE PROCESS WOULD BE LIKE, I SUPPOSE I WOULD BE INTERESTED IN DOING THAT. BECAUSE IT WOULD CURTAIL THE CRITICISM THAT EVENTS THAT YOU AND OTHERS HAVE PLANTED ARE SO FAR REMOVED FROM THAT. I WILL TELL YOU THAT A COLLEAGUE OF MINE PROPOSED A STUDY THAT I WISH HE HAD BEEN ABLE TO DO BUT THE HUMAN SUBJECTS COMMITTEE REFUSED TO LET HIM DO IT. AND HERE IS THE STUDY. IT WAS INSPIRED BY THE FOLLOWING KINDS OF STORIES AND WE'VE HEARD THESE A FEW TIMES NOW. REMEMBER THE STORIES OF THE WOMEN LIKE HOLLY RAMONA WHO GO INTO THERAPY AND THEY HAVE NO KNOWLEDGE THAT THERE WAS ANY SEXUAL ABUSE AT ALL AND THEN THE THERAPIST ENGAGES IN CERTAIN ACTIVITIES AND IN HOLLY'S CASE SHE THEN COMES UP WITH 11 YEARS OF ABUSE. WELL, WE KNOW A LOT OF DETAILS ABOUT HER THERAPY BECAUSE SHE SUED HER FATHER AND THEREFORE WE WERE ABLE TO GET ALL THE MEDICAL RECORDS AND THE THERAPY NOTES AND EVERYTHING. BUT THERE ARE MANY FAMILIES WHERE THE PARENTS KNOW THAT THEIR GROWN UP CHILD IS IN THERAPY. THE PARENTS KNOW THAT THE GROWN UP CHILD HAS DEVELOPED THESE STRANGE, BIZARRE BELIEFS AND MEMORIES ABOUT EXTENSIVE BRUTALIZATION. BUT THEY DON'T KNOW VERY MUCH MORE THAN THAT. THEY DON'T KNOW WHAT WENT ON IN THE THERAPY, THEY DON'T KNOW THE TECHNIQUES OF THE THERAPIST, AND SOME OF THESE ACCUSED PARENTS HAVE HIRED PRIVATE INVESTIGATORS TO POSE AS PATIENTS AND MAKE APPOINTMENTS WITH THOSE THERAPISTS. AND WHEN THAT'S HAPPENED WE'VE SEEN SITUATIONS WHERE ON THE FIRST OR SECOND OR THIRD SESSION THE THERAPIST DIAGNOSES "YOU'RE A SEX ABUSE SURVIVOR AND OUR JOB IS TO RECOVER THOSE MEMORIES". SO A COLLEAGUE WANTED TO DO THIS IN A MORE THOROUGH WAY. HE WANTED TO SEND CONFEDERATES INTO THERAPISTS' OFFICES WITH HIDDEN TAPE RECORDERS, POSING AS PATIENTS, AND FIND OUT JUST HOW OFTEN ARE THESE THERAPISTS IN OUR SOCIETY ENGAGING IN THESE QUESTIONABLE TECHNIQUES? AND HE WASN'T ALLOWED TO DO IT. I THINK WE HAVE JUST ONE MORE QUESTION AT THE BACK THERE. CAN REALISTIC DREAMS BECOME FALSE MEMORIES? OH, YES, THAT'S ANOTHER SOURCE. PEOPLE SOMETIMES CAN'T REMEMBER WHETHER THEY DID SOMETHING OR JUST DREAMED ABOUT DOING IT. AND I HAVE SEEN IN ACTUAL CASES WHERE PEOPLE WILL DREAM THINGS

- AND THIS ESPECIALLY WORKS WHEN THE THERAPIST IS THERE TO ENCOURAGE YOU TO INTERPRET THE DREAM AS A REFLECTION OF A REAL MEMORY. AND THAT'S ONE WAY THEY GET FAR DOWN THAT ROAD TO FALSE MEMORIES. CAN I ON BEHALF OF ALL OF US SAY THANK YOU FOR BEING SUCH A GREAT AUDIENCE TODAY AND TAKING PART WITH YOUR QUESTIONS AND SITTING HERE FOR A LONG HOT DAY.

Notes to question 2& 4 and 5

The following is a basic outline of what should be contained in a research proposal and a few comments on each of these sections

Knowing how to organize and present a proposal is an important part of the research craft. The very act of putting thoughts down on paper will help you clarify your research interests and ensure that you are saying what you mean. Remember the fellow on the television commercial who said, “Pay me now or pay me later”? The more work and thought you put into your proposal, the easier it will be to complete the research later. In fact, many supervising faculty suggest that a proposal’s first two or three chapters be actually the same as the entire finished thesis or dissertation—putting you way ahead of the game. The following is a basic outline of what should be contained in a research proposal and a few comments on each of these sections. Keep in mind that proposals can be organized differently and, whatever you do, be sure that your professor approves of your outline before you start writing. I. Introduction A. Problem statement B. Rationale for the research 1. Statement of the research objectives C. Hypothesis D. Definitions of terms E. Summary, including a restatement of the problem II. Review of the relevant literature (the more complete it is, the better) A. Importance of the question being asked B. Current status of the topic C. Relationship between the literature and the problem statement D. Summary, including a restatement of the relationships between the important variables under consideration and how these relationships are important to the hypothesis proposed in the introduction III. Method A. Participants (including a description and selection procedures) B. Research design C. Data collection plans 1. Operational definition of all variables 2. Reliability and validity of instruments 3. Results of pilot studies D. Proposed analysis of the data E. Results of the data IV. Implications and limitations V. Appendices A. Copies of instruments that will be used B. Results of pilot studies (actual data) C. IRB (Institutional Review Board) application and letter of approval D. Participant permission form E. Time line F. Actual data collected If you have looked at someone else’s thesis or dissertation, you might notice that this outline is organized around the same general sequence of chapter titles—introduction, review of literature, methodology, results, and discussion. Because this is only a proposal, the last two sections cannot present the analysis of the real data or discuss the findings. Instead, the proposal simply talks about the implications and limitations of the study, and the last part (V) contains all the important appendices. The first three sections of the finished proposal form a guideline about what the proposal should contain: introduction, review of literature, and method. The rest of the material (implications and such) should be included at your own discretion and based on the wishes of your adviser or professor. Keep in mind that completing the first three sections is a lot of work. However, you will have to gather that information anyway, and doing it before you collect your data will give you more confidence in conducting your research as well as a very good start and a terrific road map as to where you are going with your research. Appearance Although the words in your proposal are important, the appearance of your proposal is also important. What you say is more important than how you say it, but there is a good deal of truth to Marshall McLuhan’s statement that the medium is the message. Here are some simple, straightforward tips about proposal preparation. If you have any doubts about presentation (and if you don’t have any other class guidelines), follow the guidelines set forth in the sixth edition of the Publication Manual of American Psychological Association (APA, 2009), which is discussed and illustrated in Chapter 14. • All pages should be typed with at least 1-inch margins on top, bottom, left, and right to allow sufficient room for comments. • All pages should be double-spaced. • All written materials should be proofread. This does not mean just using a spell checker. These marvels check only your typing skills (to, two, or too?), not your spelling or grammar. So, proofread your paper twice—once for content and once for spelling and grammatical errors. And, it would not be a bad idea to ask a fellow student to read it once. • The final document should be paper clipped or stapled together, with no fancy covers or bindings (too expensive and unnecessary). • All pages should be numbered with a running head (all of which is right justified) and a page number like this Cognitive Style and Gender Differences/Salkind 15 As for the format of the contents, you cannot go wrong if you follow the example given in Chapter 14, which is written using the APA guidelines for manuscript presentation. There are some differences between what you are reading here and what you will see in Chapter 14, but nothing major. For example, APA guidelines do not require the author’s name on each page because the review for journals is “blind.” Your professor, however, needs your name on each page. Evaluating the Studies You Read When you begin to go through research articles in preparation for writing a proposal (or just to learn more about the research process), you want to be sure that you can read, understand, and evaluate the content. As a beginning researcher, you might not be ready to take on the “experts” and start evaluating and criticizing the work of well-known researchers, right? Wrong! Even if you are relatively naive and inexperienced about the research process, you can still read and critically evaluate research articles. Even the most sophisticated research should be written in a way that is clear and understandable. Finally, even if you cannot answer all the questions listed below to your satisfaction at this point, they provide a great starting place for learning more. As you gain more experience, the answers will appear. So what makes good research? B. W. Hall, A. W. Ward, and C. B. Comer (1988) asked that very question about 128 published research articles. Among a survey of research experts, they found the following shortcomings (in order of appearance) to be the most pressing criticisms. Even though this article is almost 16 years old, the findings are still relevant to any proposal. • The data collection procedure was not carefully controlled. • There were weaknesses in the design or plan of the research. • The limitations of the study were not stated. • The research design did not address the question being asked by the researcher(s). • The method of selecting participants was not appropriate. • The results of the study were not clearly presented. • The wrong methods were used to analyze the information collected. • The article was not clearly written. • The assumptions on which the study was based were unclear. • The methods used to conduct the study were not clearly described or not described at all. This is quite a series of pitfalls. To help you avoid the worst of them, you might want to ask the following set of questions about any research article.

**Notes for Question # 3The perfect poster**

Experts reveal the art behind displaying your science.

By Michael Price

*gradPSYCH* Staff

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Poster sessions offer a chance for many eyes to see your hard work — and some of those visitors may open doors to interesting research collaboration, postdoc or career opportunities. The trick is making your poster stand out among the hundreds of others.

"A good poster is not just tacking a standard research paper on poster board," says Kathryn Tosney, PhD, a neurobiologist and chair of the biology department at the University of Miami who created a poster-making guide to help her own students. "An effective poster helps you engage colleagues in conversation and gets your main points across to as many people as possible."

Here are a few hints to draw a crowd:

* **Focus on findings.** The first thing people will look at is the poster's title, says Warren Street, PhD, a professor emeritus of psychology at Central Washington University who's judged poster sessions for years. The title should let people know what your poster is about in one brief sentence, he says. "You're marketing your ideas," he says. "Look for a simple, effective message that invites people into conversation." In the body of the poster, use short, declarative sentences to explain what you found and why it matters. Limit your methods section to a few sentences — if someone wants the nitty-gritty, they'll ask. "Providing endless details detracts from the point of your poster," Tosney says. "Simple messages are more memorable."
* **Emphasize graphics.** At a convention, your poster will probably be one fish in a large sea. Charts, graphs and pictures will make your poster pop, says George Hess, PhD, a professor at North Carolina State University who collaborated with Tosney to create an online [poster-making guide](http://www.ncsu.edu/project/posters). "There's real power in turning your information into simple, clean graphical representations to communicate data relationships."
* **Avoid 'chart junk.'** Unnecessary grid lines, labels, keys and other extraneous information undermine your main message, Tosney says. Let the data speak for itself as much as possible, Hess adds. Daniel Baughn, a clinical psychology and behavioral medicine grad student at Virginia Commonwealth University, recommends using [poster design software](http://www.postergenius.com/), which automatically balances image sizes with the rest of the poster's materials.
* **Choose colors wisely.** "Go for simplicity and stick to two or three colors that really stand out against your background," Hess says. More than that will overload and confuse your readers. In general, dark colors against a white background show up better than light colors against a dark background, especially in dimmer convention halls. Also, apply colors consistently, with section titles all the same hue. Finally, Hess says, keep in mind that 7 percent to 10 percent of men have red-green colorblindness, so don't put those colors adjacent to each other.
* **Leave white space.** Don't jam every square inch of your poster with graphs and text, says Street. Leaving space between poster elements will make it easier to read.
* **Aim for symmetry.** If you have a graphic element in the top left, try to include one in the bottom right, as well. A 1994 study in *Nature* found that humans have an aesthetic preference for symmetrical things, be they people or patterns (Vol. 372, No. 2). A poster that's image-heavy on either end throws off people's natural affinity for symmetry. Graphics in the middle of your poster are fine, but don't overload the poster edges, Tosney adds.
* **Design for your readers' eyes.** Designer and communication researcher Colin Wheildon, author of "Type & Layout" (Worsley Press, 2005), explains that most people from Western reading backgrounds will read your poster from top to bottom, then left to right. So lay out your information in columns that follow this path. You can number your sections and include simple flowchart marks to further guide your reader's gaze. One thing you don't want to do is get too unusual with your layout, says Hess. It's more important for your poster to be readable than clever.
* **Mind the details.** Include your full contact information. If you go off to look at other posters or get lunch, you might miss someone who's interested in talking to you. Also, have printouts of your poster that include a few explanatory sentences on either a separate page or along the bottom.

**NOTES FOR QUESTION #6 MILGRIM STUDIES**

To what extent will people follow instructions that result in harm to someone else. Research in the 1960s show to what extent people follow instructions to harm another human being, even to the point of cruelly...Read More punishing or "killing" them.

- Psychologists have discovered that behind the familiarity of everyday life lie some uncomfortable truths.

- We've found that when you place people in a situation which they believe to be real in which they witness an apparently innocent victim suffering and there's nothing they can do about it, they're inclined to conclude that the victim deserved it.

- Remarkably, a lot of people were prepared to continue shocking to the point where it appeared they'd killed the other person.

- But some of these findings came at a heavy price: the deception, exploitation, and even possible harm to those being studied. So just how far should psychologists be allowed to go in their attempt to explain our behavior?

- I don't want to be the one to stand out. I want to just fit in and not be noticed, I suppose.

- You try and do the things that your friends do, especially at a younger age, to try and fit in.

- It seems that most of us like to fit in. The school where we filmed this video didn't have a uniform for six-formers, so they'd simply developed their own.

- We pretend to dress like this, because it's easier to fit in than not to.

- I think people dress the same to fit in as well and belong so they don't--I think people are scared of standing out.

- When I'm shopping, I'll say to my mom, "Oh, I like that." She'll go, "I'll get it you, then." But I go, "No, no one else has got it, and they might bully me 'cause I look different."

- It's all to do with bullying, I think. Like, it if somebody looks different, then people sort of go, "Oh, you know, you don't look"-- it's like, "Oh, you're weird," or something.

- A lot of psychological research has shown that a desire to conform, to fit in with others, can override what we actually see and what we really think.

- I don't know. You get, like, different opinions on, say, bands or whatever. And you really want to say that you don't like them and that they're rubbish or whatever, but you don't. You say that they're good because it's what your friends like. And that's-- things like that.

- Like, people smoking and stuff. You know, if you want to be-- I suppose, if you want to be kind of popular, you know, all the popular kids smoke. So you feel that you might have to go and smoke just to be in that crowd of people.

- Just as we tend to conform to the informal pressures around us, so most of us obey authority most of the time. Social life would be impossible without conformity and obedience. But conformity and obedience can also be sources of destruction. Nazi Germany in the early 1940s: a leadership intent on eliminating all political opposition and social undesirables developed into something called the Holocaust.

- The Holocaust is the name we give to the systematic killing of the Jews and other groups, like Gypsies, by the Nazis during the Second World War, mainly after 1941, when the killing of the people was carried out in a systematic way by execution squads sent specifically to do that, and then after 1942, the construction of specific camps designed to kill, such as Sobibor, which was established with the sole purpose of eliminating large numbers of people in the most efficient way that they had devised, which was gas.

- Over 6 million people were believed to have been killed in these factories of death.

- Life and death was mixed up rather strangely in that the camps themselves were divided up into work camps and extermination camps. So typically, someone like Dr. Mengele, a famous Nazi doctor know as the Angel of Death at Auschwitz, he would stand-- I think 72 times he took part-- we know he took part in these selections. And you would simply unload a trainload of deportees, and he would indicate whether it was-- they were fit, able, in which case they'd be sent to the work camp, or that they were unfit or in some way physically infirm, such as pregnant women, young children, and they would be gassed straight away. If you're in the work camp, then you were given minimal food. You were simply worked till you died. And there's quite a chilling reference in the Nazi accounts to the fact that the Jews who survived such treatment are clearly the best and strongest of their race and must therefore be eliminated.

- For most people, the nightmare of the Holocaust was a gross pathology, a social sickness brought about by specific circumstances: the brutality of the Nazi regime or certain traits in the German character. But in the 1960s, a young American psychologist, Stanley Milgram, had a different theory. Rather than being pathological, supposing the concentration camps were just an example of normal behavior in extreme circumstances?

- What he was particularly interested in was, under what conditions will people follow instructions which will result in harm to somebody else, in suffering to somebody else? And beyond that, he was interested in whether the responses to instructions to do harm, the pressure to obey are normal, whether normal people, any average person, would respond.

- To test these theories, Milgram devised a series of experiments, experiments that were to change the face of psychological research forever. Imagine you're one of Milgram's volunteers. You've answered an ad in the paper to take part in a psychological experiment. You're told it's about testing whether giving mild punishments in the form of electric shocks will improve the memory of the subject. You find yourself playing the role of teacher, and you're introduced to someone you're told is the learner.

- The learner was then subjected to electric shocks every time they made a mistake in the learning process. And because it appeared they weren't very smart, the instructions required that you keep increasing the level of shock. So each time the learner made a mistake, the shock level had to rise. And potentially, it could go up to, apparently, 450 volts.

- And the question was how far they would go up the scale, how far they would respond to the screams and the ultimately the silence of the person that was listening to-- who was answering the questions.

- Every time they expressed some reluctance about carrying on, the experiment would say, "No, the instructions require that you continue." So Milgram was interested to see how far people would go under those circumstances. At what point would they say, "No, I'm not going to give any more electric shocks. I'm not going to increase the voltage."

- So how far do you think you'd have gone if you'd have been a teacher? Perhaps further than you think. The results of these experiments surprised even Milgram and his research team.

- He asked a large number of students and psychiatrists before the research took place, how far did they think the participants would go? And the average was about 120, 150 volts. And nobody was predicted to go beyond 300 volts. In the event, everybody went beyond 300 volts. And 2/3 of them, as we now know, went all the way. And even when there was no answer from the person next door, still they went on. And remarkably, a lot of people were prepared to continue shocking to the point where it appeared they'd killed the other person.

- What Milgram concluded that this revealed about obedience is that it's not unnatural that practically anybody can be induced to obey authority and to do things which you might regard as inhumane, cruel, sadistic, and yet with not any sadistic intent but simply in order to abide by the instructions given to them by a legitimate authority. And the conclusions seems to be, or at least the conclusion that many people took from this research is that people's inclination to unconditional obedience is very high.

- Milgram's research threw new light on the Holocaust and the question of how ordinary German citizens could have been turned into mass murderers in such a short time. It seemed that the phrase "only obeying orders" had rather more to it than most people believed at the time.

- To many of them, they were obeying orders. The orders were clear. So if you wish to believe you were obeying orders, you can. And it was a very rigid hierarchy. And people who showed sympathy were exterminated too.

- To some, Milgram's experiments were amongst the most important ever done in psychology. But others were very critical, arguing this research should never have been done, because it was completely unethical. But what are ethics? How do they relate to psychology, and what do you need to know about them?

- These psychology students are being asked to devise a psychological research project that raises ethical problems.

- So I'd like you to go away, write your research method up in detail for me, and also have a serious consideration of the ethical issues.

- So first of all, what are ethics?

- Ethics are agreed social rules about how we should behave. and so they change with generation and with culture. And they're what we agree is right and wrong.

- Well, I would see an ethical issue as a moral responsibility or a moral obligation that arises by virtue of the job that you have or the profession you're doing. In other words, something which arises by virtue of occupying a position which gives you particular responsibilities or special trust.

- So why does psychological research need ethical guidelines?

- It needs ethical guidelines because you're doing research with people. And as a psychologist, you're in a powerful position, and the rights of the participants, or subjects, needs to be protected. And so ethical guidelines are there to do that.

- So it's important that there's a clear statement of what the range of issues are, what considerations ought to be borne in mind. I think it also is important because it allows us to see what they can expect of us and judge us against those standards.

- The British Psychological Society has a statement of ethical guidelines clarifying, amongst other things, the obligations the researcher has to the subject.

- Good ethics on the whole would be not to humiliate people, not to hurt people, not to harm them in any way either in the short term or the long term, not to abuse them or exploit them.

- But how do these ethical guidelines work in practice?

- First we need to know what we want to find, what we want to get out of doing this experiment.

- I really want to see whether people are going to conform.

- Our students have decided to construct a research project on bullying.

- Bullying is a big problem in school, I think. And I think the teachers don't realize how much it does go on.

- Everyone generalizes bullying with violence, but really, I'd say it's more mental bullying. It's more putting the person down, making them feel bad about themselves.

- I was always really quiet in lower school, and I think people just picked up on that and thought, "Oh, she's easy to upset, so we'll pick on her."

- School bullying and the tyranny of the Nazis are obviously very different. But they've got one thing in common. Once started, they're both driven by fear, fear that you'll be the next victim.

- Increasingly, the research about the Holocaust says that the threat was not really from the gestapo or somebody like that, that if you said, "I don't want to pack these people into a railway train," they weren't the people who would get you. What would get you was your neighbor. And what we're pretty clear about is that there was a climate of fear. But to openly step out of line was to invite, you know, retribution.

- If someone is being bullied at school, I try not to get involved, because I'm worried that the bullying will start on me again.

- You just tend to sit on the sideline, really, don't you? You don't really want to get involved, 'cause you're scared that they'll turn on you.

- Part of the obeying orders is that you're perhaps attacking a minority that you never liked anyway, you never respected anyway. But to step out of line puts you and your whole family at risk, and most of us wouldn't want to do that. Self-preservation is a basic instinct: your family, the protective instinct of a parent. And so you get this constant sort of pressure on you to conform, not to step out of line. And most of us don't, do we?

- Usually, most people do join in with bullying so they don't stand out from their friends. They don't want to be bullied themselves.

- Our students' project was about exploring this relationship between bullying and conformity. They've devised an experiment to use observational methods in the English class they attend with other students. One of the psychology group, Paul, has agreed to act as a victim. The others will start making horrible comments to him and spreading rumors about him.

- So who's gonna be the main bully? Who's gonna pick on Paul?

- Helen, Helen. - Good.

- I'll be a main bully.

- Paul's the victim. What sort of things are we gonna make her say? It's got to be stuff that's gonna influence other people.

- Yeah.

- What about his girlfriend? That ought to get to him, won't it? If anyone, like, said something about his girlfriend, that'd get really--

all: Yeah.

- The experiment is to see if the subjects-- that is, the other students in the class-- will join in with the bullying. Will they conform? But should such a piece of research ever be done? It raises a number of key ethical issues, as the subjects have not given their consent and are also being deceived.

- What about other people? If they don't know about it and then we turn around, it's gonna make them look like bullies.

- Yeah.

- What about them?

- I think if you're going to consider undertaking a piece of research in which there's no consent, that one should apply the three crucial tests. Is is scientifically justified? Are the potential gains greater than denying people the right to make a choice? Secondly, is any real harm being caused to the participants, real distress, humiliation? Thirdly, is there any viable alternative?

- So does the scientific and social value of the research justify the lack of consent and the deception? Clearly, bullying is a major social problem.

- I've got name-called and everything. It was--I'd go home, and I would be really upset. I'd be crying and everything. It got really bad. And I went to the school counselor about it.

- They used to call me a Nazi at first, because I came from Germany. But obviously, that was 'cause my dad was in the forces. And when I came here, they used to call me a freak as well. And they-- I remember being tripped up when I walked down the corridors from the back of my feet and stuff.

- If we reduce bullying in the long run, then it will be beneficial, 'cause there's so many people get upset with bullying and do things that they shouldn't, then we might as well take the risk.

- I agree it's an important issue. But I just don't think this sort of experiment is gonna help, to be honest. It might find out some things, but you've got to think how it's gonna affect people in the long run.

- But it's likely that it's gonna be the only way that they'll act realistically, even though it's, like, basically wrong.

- Ethical issues would be easy if it was just a question of what was right and what was wrong. But they aren't that simple. Ethical problems involve trying to balance competing rights: in this case, the researcher's right to gain knowledge about an important issue against the subjects' rights to be informed about the research.

- Under some circumstances, research does involve misleading people, as to the fact that they're in a piece of research at all. Classic examples are research on bystander intervention in emergencies. An emergency is staged in some public setting, and you're interested in how people react. Now, of course, if they knew this was an experiment, they're not going to react at all. So it's difficult to see how you could do that without misleading people.

- But it's not just the deception. There's also the question of possible harm to the subjects.

- What about other people? If they don't know about it and then we turn around, it's gonna make them look like bullies.

- Yeah. - What about them? Then what happens if they're upset afterwards?

- We just tell them it's just an experiment to see who'll join in, why some have got it inside of them to bully someone.

- It might make them think as well.

- Yeah, but could they take that bullying further after that if they're--

- Yeah.

- A lot of them could be quite upset by it.

- Yeah, did with Milgram, didn't they?

- Yeah.

- One way of mitigating possible harm is through debriefing.

- Debriefing ought to include explaining very clearly to the participants why the research was done, what you found, in some detail, what you'll do with the findings, but also to assure people that their responses are entirely normal, that there's nothing unnatural or shameful about the way that they behave, that most people behave in this way.

- So that when a participant leaves the lab, they're in the same state as they were when you first got your hands on them. I think that's very important that we don't change a person as a result of taking part in research.

- The evidence seems to indicate that provided that debriefing is thorough and that it is sensitive, it can ameliorate what otherwise might be harmful or undesirable consequences of misleading people, or putting them through stressful experiences.

- However, the possibilities for debriefing are very limited in this case. So could the research be done differently? Could the students use alternative methods?

- I'm not sure, actually. I think we should do some sort of research about how the people are gonna react.

- A questionnaire or something based on bullying.

- If you do that, people are gonna lie on a questionnaire, 'cause no one thinks they're a bully. So they're just gonna lie. It's gonna be biased.

- Well, we'll have to do a questionnaire that's more questions where people aren't really seeing where we're going with it.

- No, but if we do this, like, as long as at the end we tell everyone that it was all just, like, an experiment, and nothing about it is true.

- I reckon that doing this would be a better idea than a questionnaire or anything. I reckon you're gonna get what people are really like.

- The option that many people might argue for is that, well, rather than doing the experiments, we should get people to role-play, imagine themselves in the position-- are very unlikely to work for all kinds of reasons. But probably the most important is, people just don't have that kind of access to what they would actually do to the extent that they could predict in playing a role what they would actually do.

- So should this research be done? In its favor, it offers a scientific hypothesis. It may contribute to our understanding of a major school problem, and alternative methods probably wouldn't work. But against it, the subjects are not consenting, are being deceived and possibly harmed. So is this research justified ethically? Should it ever take place?

- All right, then. Have you made a decision about your project?

- No--don't think we should do it anymore.

- Don't you? Why not? - Well, some of us do. But we're undecided whether it's worth going with it. After all, we've looked at all the ethical guidelines, and Tom's totally against it now. He doesn't want to do it at all.

- Yeah, we looked at 'em last night, and we're breaking nearly every guideline.

- So which BPS guideline are you breaking? Let's have a look at them.

- Consent, deception.

- Definitely consent. Who's consent wouldn't you have?

- Everyone else in the class apart from Paul.

- They won't know they're--

- But Paul's isn't really informed consent, 'cause he didn't know how far it's gonna go.

- Excellent; good point. Yeah, 'cause you can't really know what the long-term effects are gonna be.

- Sometimes people will apply the ethical guidelines, like informed consent, but don't perhaps test enough whether people truly understand them.

- These students have recognized the ethical problems of carrying out their research in spite of the contribution it might make.

- What do you think, Helen? Do you think we should still do it?

- Yeah, I want to do it, but after reading that, then it's not gonna be ethical, really, is it?

- Well, I think, really, it's quite a shame you can't do this study. But you're quite right to realize that there's too many ethical problems with it. I think bullying is a very important issue, as you've rightly said. But we need to perhaps find a different way of studying conformity, one that doesn't break all these ethical guidelines.

- But are decisions like this being taken in real-world psychology? Are ethical issues now preventing important research from being done?

- I think that there is a risk that in raising concern about what is ethical we may also begin to rule out for ourselves the possibility of finding out important things about human nature.

- There's always the problem that any sort of constraint on research is going to prevent people from perhaps answering the really important questions.

- And I'll give you an example. We have discovered that through experimental research in which people were misled about the purposes and in which people weren't, therefore, giving fully informed voluntary consent and knowing what was going to happen. We've found that when you place people in a situation which they believe to be real in which they witness an apparently innocent victim suffering and there's nothing they can do about it, they're inclined to conclude that the victim deserved it. And this is a tremendously important insight into human nature, that we tend to derogate, to condemn innocent victims if there's nothing we can do. Now, the only way we were ever able to find that out was to create this situation that the participants thought was genuine. They really thought this person was suffering.

- In fact, Philip Zimbardo, who many students know of, carried out the prison simulation study. He went to school with Milgram, so he's very close to him. And he suggested that in their case, people object to the research not because of what they did but because of the results that they got, the fact that there could be evil lurking in all of us.

- So has the balance now shifted too far in favor of ethics?

- I think the balance has clearly shifted a long way form the time when Milgram and others were doing research and apparently without much attention to or constraint by ethical guidelines. And I think, clearly, it needed to shift. But it perhaps has swung too far in the other direction now, and we've become oversensitive to the possible costs of what we're doing.

- Well, it says here, "observational research: studies based on observation must respect the privacy and psychological well-being of the individual studied." We're not doing that, are we? So...

- But doesn't it seem strange that we don't apply these ethics to our entertainment?

- It appears entirely acceptable to completely fool people, make them ludicrous, make them extremely distressed. For what? For commercial gain.

- Many of the contestants in reality TV programs are put under far more stress than Milgram's participants. That's allowed. But would Milgram's experiments be allowed today?

- Well, they probably wouldn't be allowed today. No, because of the deception involved and also because of the quite obvious strain that was put on the people taking part.

- Probably the most difficult feature in terms of the ethical guidelines is that we ought in research to say to people at the beginning, "You are free to abandon this experiment at any point, should you so wish." And yet, of course, the experiment that Milgram ran included explicitly the instruction, whenever anybody expressed reluctance about continuing, "You must continue." The instruction or the procedure requires that you continue.

- To many psychologists, the fact that a Milgram-type study would almost certainly not be allowed today is a sign of progress, evidence that psychology is now more ethically aware.

- Psychology also has to move forward. You can't go on treating participants as if they were somehow renewable resources. We have to look at other ways of getting research. And there are lots of techniques already with animal research, for example. Given the sensitivity of animal research, psychologists have found all sorts of new ways of getting around actually using animals themselves. So perhaps we can start learning from them.

- When you ethics sections of your psychology textbooks, they're all about the things that psychology shouldn't do. But there's another, more positive ethic, and that's the ethic of applying psychology to try to make the world a safer place, a better place to live in. And in terms of this criterion, then Milgram's research was about as ethical as you can get.

- But when we look back at Milgram's research and we think of all the possible benefits of that research, they're huge. For once and all, Milgram put to rest this idea that evil deeds come from evil people. After the Nuremberg war trials, I think the world was horrified by the sorts of things that the SS and the gestapo were doing in the death camps. But these apparently were just ordinary people. And it was the power of the situation that caused them to act in the way that they did. I think understanding that, understanding that it is the situation that constrains our capacity for moral judgment is very, very important. So to simply say that, "No, we could never do this sort of research again," I think closes down lots of very important research in the future.

- So it seems psychology has to modify its ethical restrictions or abandon experimental research into the darker side of life. Either way, it has some stark choices to make.

**NOTES for Questions 7.**

**WHAT IS A RESEARCH POSTER?**

Preparing a poster involves not only creating pages to be mounted in a conference hall, but also writing an associated narrative and handouts, and anticipating the questions you are likely to encounter during the session. Each of these elements should be adapted to the audience, which may include people with different levels of familiarity with your topic and methods ([Nelson et al. 2002](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b10); [Beilenson 2004](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b1)). For example, the annual meeting of the American Public Health Association draws academics who conduct complex statistical analyses along with practitioners, program planners, policymakers, and journalists who typically do not.

Posters are a hybrid form—more detailed than a speech but less than a paper, more interactive than either ([Appendix A](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#SD1)). In a speech, you (the presenter) determine the focus of the presentation, but in a poster session, the viewers drive that focus. Different people will ask about different facets of your research. Some might do policy work or research on a similar topic or with related data or methods. Others will have ideas about how to apply or extend your work, raising new questions or suggesting different contrasts, ways of classifying data, or presenting results. [Beilenson (2004)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b1) describes the experience of giving a poster as a dialogue between you and your viewers.

By the end of an active poster session, you may have learned as much from your viewers as they have from you, especially if the topic, methods, or audience are new to you. For instance, at David Snowdon's first poster presentation on educational attainment and longevity using data from The Nun Study, another researcher returned several times to talk with Snowdon, eventually suggesting that he extend his research to focus on Alzheimer's disease, which led to an important new direction in his research ([Snowdon 2001](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/" \l "b12)). In addition, presenting a poster provides excellent practice in explaining quickly and clearly why your project is important and what your findings mean—a useful skill to apply when revising a speech or paper on the same topic.

Research posters are organized like scientific papers, with separate pages devoted to the objectives and background, data and methods, results, and conclusions ([Briscoe 1996](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b2)). Readers view the posters at their own pace and at close range; thus you can include more detail than in slides for a speech (see [Appendix A](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#SD1) for a detailed comparison of content and format of papers, speeches, and posters). Don't simply post pages from the scientific paper, which are far too text-heavy for a poster. Adapt them, replacing long paragraphs and complex tables with bulleted text, charts, and simple tables ([Briscoe 1996](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b2); [Beilenson 2004](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b1)). [Fink (1995)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b5) provides useful guidelines for writing text bullets to convey research results. Use presentation software such as *PowerPoint* to create your pages or adapt them from related slides, facilitating good page layout with generous type size, bullets, and page titles. Such software also makes it easy to create matching handouts (see “Handouts”).

The “W's” (who, what, when, where, why) are an effective way to organize the elements of a poster.

* In the introductory section, describe what you are studying, why it is important, and how your analysis will add to the existing literature in the field.
* In the data and methods section of a statistical analysis, list when, where, who, and how the data were collected, how many cases were involved, and how the data were analyzed. For other types of interventions or program evaluations, list who, when, where, and how many, along with how the project was implemented and assessed.
* In the results section, present what you found.
* In the conclusion, return to what you found and how it can be used to inform programs or policies related to the issue.

**WRITING FOR A VARIED PROFESSIONAL AUDIENCE**

Audiences at professional conferences vary considerably in their substantive and methodological backgrounds. Some will be experts on your topic but not your methods, some will be experts on your methods but not your topic, and most will fall somewhere in between. In addition, advances in research methods imply that even researchers who received cutting-edge methodological training 10 or 20 years ago might not be conversant with the latest approaches. As you design your poster, provide enough background on both the topic and the methods to convey the purpose, findings, and implications of your research to the expected range of readers.

[Go to:](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/)

**Telling a Simple, Clear Story**

Write so your audience can understand why your work is of interest to them, providing them with a clear take-home message that they can grasp in the few minutes they will spend at your poster. Experts in communications and poster design recommend planning your poster around two to three key points that you want your audience to walk away with, then designing the title, charts, and text to emphasize those points ([Briscoe 1996](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b2); [Nelson et al. 2002](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b10); [Beilenson 2004](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b1)). Start by introducing the two or three key questions you have decided will be the focus of your poster, and then provide a brief overview of data and methods before presenting the evidence to answer those questions. Close with a summary of your findings and their implications for research and policy.

A 2001 survey of government policymakers showed that they prefer summaries of research to be written so they can immediately see how the findings relate to issues currently facing their constituencies, without wading through a formal research paper ([Sorian and Baugh 2002](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/" \l "b13)). Complaints that surfaced about many research reports included that they were “too long, dense, or detailed,” or “too theoretical, technical, or jargony.” On average, respondents said they read only about a quarter of the research material they receive for detail, skim about half of it, and never get to the rest.

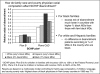
To ensure that your poster is one viewers will read, understand, and remember, present your analyses to match the issues and questions of concern to them, rather than making readers translate your statistical results to fit their interests ([DiFranza and the Staff of the Advocacy Institute 1996](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/" \l "b4); [Nelson et al. 2002](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b10)). Often, their questions will affect how you code your data, specify your model, or design your intervention and evaluation, so plan ahead by familiarizing yourself with your audience's interests and likely applications of your study findings. In an academic journal article, you might report parameter estimates and standard errors for each independent variable in your regression model. In the poster version, emphasize findings for specific program design features, demographic, or geographic groups, using straightforward means of presenting effect size and statistical significance; see “Describing Numeric Patterns and Contrasts” and “Presenting Statistical Test Results” below.

**Notes for QUESTION 8. Presenting Statistical Test Results**

Miller, J. E. (2007). Preparing and Presenting Effective Research Posters. *Health Services Research*, *42*(1 Pt 1), 311–328. http://doi.org/10.1111/j.1475-6773.2006.00588.x

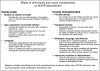
On your poster, use an approach to presenting statistical significance that keeps the focus on your results, not on the arithmetic needed to conduct inferential statistical tests. Replace standard errors or test statistics with confidence intervals, *p-*values, or symbols, or use formatting such as boldface, italics, or a contrasting color to denote statistically significant findings ([Davis 1997](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b3); [Miller 2005](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b9)). Include the detailed statistical results in handouts for later perusal.

To illustrate these recommendations, [Figures 1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig01/) and [​and22](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig02/) demonstrate how to divide results from a complex, multilevel model across several poster pages, using charts and bullets in lieu of the detailed statistical table from the scientific paper ([Table 1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/table/tbl1/); [Phillips et al. 2004](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/#b11)). Following experts' advice to focus on one or two key points, these charts emphasize the findings from the final model (Model 5) rather than also discussing each of the fixed- and random-effects specifications from the paper.

[](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig01/)

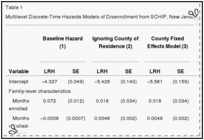
[Figure 1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig01/)

Presenting Complex Statistical Results Graphically

[](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig02/)

[Figure 2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig02/)

Text Summary of Additional Statistical Results

[](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/table/tbl1/)

[Table 1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/table/tbl1/)

Multilevel Discrete-Time Hazards Models of Disenrollment from SCHIP, New Jersey, January 1998–April 2000

[Figure 1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig01/) uses a chart (also from the paper) to present the net effects of a complicated set of interactions between two family-level traits (race and SCHIP plan) and a cross-level interaction between race of the family and county physician racial composition. The title is a rhetorical question that identifies the issue addressed in the chart, and the annotations explain the pattern. The chart version substantially reduces the amount of time viewers need to understand the main take-home point, averting the need to mentally sum and exponentiate several coefficients from the table.

[Figure 2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig02/) uses bulleted text to summarize other key results from the model, translating log-relative hazards into hazards ratios and interpreting them with minimal reliance on jargon. The results for family race, SCHIP plan, and county physician racial composition are not repeated in [Figure 2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig02/), averting the common problem of interpreting main effect coefficients and interaction coefficients without reference to one another.

Alternatively, replace the text summary shown in [Figure 2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/figure/fig02/) with [Table 2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/table/tbl2/)—a simplified version of [Table 1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/table/tbl1/) which presents only the results for Model 5, replaces log-relative hazards with hazards ratios, reports associated confidence intervals in lieu of standard errors, and uses boldface to denote statistical significance. (On a color slide, use a contrasting color in lieu of bold.)