IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

ENTERTAINMENT SOFTWARE ASSOCIATION, et al.,	)	
Plaintiffs,	)	No. 05 C 4265
v.	)	Chicago, Illinois
	)	November 14, 2005
ROD BLAGOJEVICH, et al.,	)	10:00 a.m.
Defendants.	)	

TRANSCRIPT OF PROCEEDINGS
BEFORE THE HONORABLE MATTHEW F. KENNELLY

APPEARANCES:

For the Plaintiffs: JENNER & BLOCK, LLC
One IBM Plaza
330 North Wabash Avenue
40th Floor
Chicago, IL 60611, by
MS. KATHERINE A. FALLOW
MS. KATHLEEN R. HARTNETT
MR. DAVID P. SANDERS

JENNER & BLOCK, LLP
601 13th Street
1200 South
Washington, D.C. 20005, by
MR. PAUL M. SMITH

For the Defendants: FLETCHER, TOPOL, O'BRIEN & KASPER, P.C.
222 North LaSalle Street
Suite 300
Chicago, IL 60601, by
MR. MICHAEL J. KASPER

HOGAN MARREN, LTD.
180 North Wacker Drive
Suite 600
Chicago, IL 60606, by
MR. PATRICK E. DEADY
MS. LAURA C. LIU

OFFICE OF THE ILLINOIS ATTORNEY GENERAL
100 West Randolph Street
13th Floor
Chicago, IL 60601, by
MR. ANDREW L. DRYJANSKI
MS. ELLECIA L. PARSELL-BURKE

COOK COUNTY STATE'S ATTORNEY
500 Richard J. Daley Center
Chicago, IL 60602, by
MR. STEPHEN L. GARCIA

COURT REPORTER: LAURA M. BRENNAN
219 South Dearborn Street, Room 2102
Chicago, IL 60604
(312) 427-4393

(The following proceedings were had in open court:)

THE CLERK: 05 C 4265, Entertainment v. Blagojevich.

THE COURT: Good morning.

MR. SMITH: Good morning, your Honor.

THE COURT: Can I get the lawyers' names for the record, please?

MR. SMITH: For the plaintiffs, Paul Smith, David Sanders, Katherine Fallow, and Kathleen Hartnett, all from Jenner & Block.

MR. KASPER: Michael Kasper.

THE COURT: Hang on a second.

MR. KASPER: I am sorry.

THE COURT: The fourth name?

MS. HARTNETT: Kathleen Hartnett, H-a-r-t-n-e-t-t.

THE COURT: Okay.

MR. KASPER: Michael Kasper, K-a-s-p-e-r, on behalf of defendant Blagojevich.

MS. LIU: Laura Liu, L-i-u, on behalf of defendant Blagojevich.

MR. DEADY: Patrick Deady, D-e-a-d-y, on behalf of defendant Blagojevich.

MR. GARCIA: Stephen Garcia on behalf of defendant Devine.

MR. DRYJANSKI: Andrew Dryjanski, D-r-y-j-a-n-s-k-i, for defendant Madigan.

MS. PARSELL-BURKE: Ellecia Parsell-Burke, P-a-r-s-e-l-l-B-u-r-k-e, on behalf of defendants Madigan and Blagojevich.

THE COURT: Okay, you can all have a seat.

There are a couple of things to go over before we start. First of all, there was --

Augie, there is one thing you can do. There was a motion for leave to file supplemental authority by the plaintiff noticed up for today. That is granted. I am just going to -- here, I will give you the cover sheet on it there.

All right. Just in terms of making sure that I have gone over everything that I am supposed to have, on the motion for preliminary injunction, there is the motion, the memorandum in support and appendix. There are responses by -- there is a response by defendant Devine. There is a response by defendant Blagojevich with a number of exhibits. Then there is a reply brief that also has a number of exhibits attached to it.

There is a motion to dismiss by defendant Madigan that is fully briefed. There is a motion to dismiss by defendant Devine that is fully briefed. Then there is the motion for partial summary judgment by defendant Blagojevich on one aspect of the case, and I didn't require briefing of that, but it is discussed -- at least the legal aspect of it is discussed in the preliminary injunction motion to some extent.

My intention, I think, is to deal with the motions to

dismiss as part of the preliminary injunction hearing. So I am not going to rule on those ahead of time. I will say I was a bit curious as to why the one defendant who does not have any responsibility for law enforcement didn't file a motion to dismiss. You would seem to me to be the most logical person to file one.

Since, you know, arguably, this involves jurisdiction or jurisdictional issues, in other words, whether there is a case or controversy with a particular defendant, I guess I would like to know why you didn't file one.

MR. KASPER: We did file a motion to dismiss, your Honor.

THE COURT: A motion to dismiss on the grounds of lack of jurisdiction?

MR. KASPER: On the basis of standing.

THE COURT: I never saw it.

MR. KASPER: I believe we did. It has been fully briefed.

THE COURT: Do you have a copy?

MR. DEADY: We didn't bring it over, Judge. We can get a copy.

THE COURT: I never saw it. I have got one from Madigan, I have got one from Devine, I have got a combined response to Madigan and Devine.

MR. SMITH: We can get a copy, your Honor.

THE COURT: No, no, I have got that motion. That is the motion for lack of standing.

No, I am talking about a motion along the lines of what Madigan and Devine filed. In other words, they filed motions saying, we are not doing anything to enforce this law.

MR. KASPER: Correct.

THE COURT: I would imagine the governor doesn't do anything to enforce the law. So why isn't that argument part of yours? Is there something I am missing?

MR. KASPER: Judge, the governor did not want to file a motion along those lines. He was a supporter of this law when it was passed by the general assembly, and he wants to defend it.

THE COURT: Isn't that something, though, that I need to deal with, whether somebody raises it or not?

MR. SMITH: Your Honor, my understanding of the Eleventh Amendment defenses is that while they are somewhat jurisdictional in nature, they are waivable as well, and the failure to raise such a defense doesn't require you to address it.

THE COURT: I mean, I am not sure this is really a -- I mean, I guess it is an Eleventh Amendment issue, I guess, along the lines of the Madigan and Devine issues.

So, in other words, the short answer is you didn't file one because you didn't want to. You would rather defend

the law than say you don't have jurisdiction over me.

MR. DEADY: Judge, let me --

Pat Deady, Judge.

With respect to the motion to dismiss that was filed with respect to standing, the discussion among the counsel for the governor was, until the standing issue was resolved, he didn't believe he had to raise what was the Eleventh Amendment or the other issue raised with respect to --

THE COURT: Then why did the motion for summary judgment get filed? There seems to be a bit of an inconsistency there.

MR. DEADY: Well, Judge, we thought we had to defend based on the way that you had set the briefing schedule. The governor --

THE COURT: I didn't tell anybody to file a summary judgment motion. I just told you to respond to the motion for preliminary injunction. You guys did that on your own.

So, pardon me, but I am not buying the explanation. I mean, I am not just trying to jerk people around here, but I would like to know, because even if it is a quasi-jurisdictional issue, and even if it's waivable, I think I am entitled to know why the issue isn't being raised because it may bear on whether I consider it on my own motion or not.

MR. KASPER: Yes, I think that is a fair summary of what the governor's position is.

THE COURT: What is a fair summary?

MR. KASPER: That he is interested in defending the constitutional and statutory --

THE COURT: Well, I will think about that in the final analysis, I suppose.

I gather that most of the evidence that is going to be presented, or maybe all the evidence that is going to be presented, has to do with the aspect of the legislation that concerns violent video games. Am I right about that?

MR. SMITH: That is correct, your Honor.

MR. KASPER: Yes.

THE COURT: I am hoping and more than hoping -- I am expecting -- that in the arguments at the end, there is also going to be some discussion about the aspect that deals with sexually explicit video games.

MR. KASPER: We are prepared.

MR. SMITH: Our position on that is a legal one, your Honor.

THE COURT: I understand you're planning on doing that.

Then the other question -- and nobody needs to deal with this now but deal with it at the end -- has to do with I guess what I will generically refer to as the labeling requirements. It's more to it than that. It's the labeling and the signs and all of the other associated things that go

along with it. I guess one of my questions is --

I mean, there has been discussion in the briefs about the propriety of that from a constitutional standpoint. I didn't see a whole lot of discussion about the issue of severability. So I would like people to think about that and talk about it we when get to the end of the case.

I think that takes care of all the issues that I wanted to raise with you ahead of time.

Do people want to do opening statements or do you just want to start out? I mean, I have read all the briefs. I reread them several times over the weekend. I don't need to be refreshed with your arguments.

MR. SMITH: My sense, your Honor, and just a suggestion, is we have witnesses here --

THE COURT: Fine, let's start with the witnesses.

MR. KASPER: All right.

THE COURT: That's fine. Have you talked about how we are doing this, who is going first?

MR. SMITH: We actually have an order, your Honor, which is primarily based on the convenience of the witnesses.

THE COURT: That is fine, no problem.

MR. SMITH: You have read it all anyway. It is going to be kind of one of our guys, one --

THE COURT: It doesn't matter. So who is going first? What witness is going first?

MR. KASPER: The first witness is William Kronenberger, who is one of the state's --

THE COURT: Is he here?

MR. KASPER: Yes.

THE COURT: Is there a motion to exclude witnesses or is there not a motion to exclude witnesses?

MR. SMITH: There is no motion from us. They are all experts, your Honor.

THE COURT: So nobody is asking me to do that, okay.

So we will start with Dr. Kronenberger.

The first thing I have to do is get water. Come on up here.

(Brief interruption.)

THE COURT: Go ahead.

WILLIAM G. KRONENBERGER, DEFENDANTS' WITNESS, DULY SWORN

DIRECT EXAMINATION

BY MS. LIU:

Q Good morning, Dr. Kronenberger. Could you state your name for the full record?

Could you state your full name for the record, please?

A My name is William George Kronenberger. K-r-o-n-e-n-b-e-r-g-e-r.

THE COURT: Keep your voice up. Even though there is a microphone, pretend there's not one.

BY MS. LIU:

Q Could you give us a brief history of your educational background?
A Yes. I have a bachelor's degree in psychology from Xavier University. I have a master's degree in clinical psychology from Duke University where I was a James B. Duke Fellow.

I have a PhD in clinical psychology from Duke University as well.

Q Do you have any training in any specialty area of psychology?
A Yes. I am trained in pediatric psychology, which is the study of children's essentially biology and illness and how that interfaces with behavior in children.
Q Do you have any particular training in any other areas of psychology?
A Well, I did complete an internship as a part of my training, which is -- it is not didactic schooling per se, but you go and you do a practical on-site training. As part of that internship, I did rotations in pediatric psychology and in neuropsychology.

As part of my training in pediatric psychology in graduate school at Duke University, I also did rotations in child clinical psychology and neuropsychology in hospital settings and in pediatric psychology hospital settings.
Q Dr. Kronenberger, where do you presently work?
A I am --

THE COURT: You need to keep your voice up, too. Just pretend there's no microphone. That's the whole deal.

THE WITNESS: I am an associate professor at Indiana University School of Medicine in the department of psychiatry. And I --

My clinical work, my day-to-day work, is within a children's hospital called Riley Hospital for Children, and there is a large clinic within that hospital called Riley Child and Adolescent Psychiatry Clinic.

THE COURT: That is in --

THE WITNESS: That is in Indianapolis, Indiana.

BY MS. LIU:

Q As part of your role as associate professor, do you have any other responsibilities other than your clinical practice?

A Yes. I do essentially three broad sets of responsibilities there. I do teaching; I do service work, which is a fairly broad area; and then I do research. My clinical work is considered by the university to be part of my service work.

Q What type of work is involved at the Riley Child and Adolescent Psychiatry Clinic?

A At the Riley Child and Adolescent Psychiatry Clinic, I engage in those three missions: Teaching, service and research. And quite a bit of what I do there involves clinical work. This is work with children and adolescents who are referred to our clinic because of behavioral disorders of one

sort or another.

At Riley Child and Adolescent Psychiatry Clinic, I am referred to as the co-chief of the ADHD and disruptive behavior disorders specialty clinic. Every clinic has a chief and a co-chief, if that helps explain what that is.

I am also the chief of the psychological testing clinic at Riley Child and Adolescent Psychiatry Clinic, and I am -- within Indiana University School of Medicine, I am the director of the section of psychology.

Q Now, do you also in your clinical practice treat any adults?

A I do treat adults. Predominantly those are adults who have attention deficit hyperactivity disorder because of the origination of that disorder in childhood and its persistence through adulthood, for continuity of care. I will occasionally treat adults with other disorders on an ad hoc basis. I do have training in adult clinical psychology as well.

Q Do you also evaluate and test adults?

A I evaluate and test adults for ADHD, not routinely for other things, for learning disorders, I should say, which often are a part of ADHD assessments.

Q Now, you mentioned that the type of disorders that you treat in your clinical practice involve ADHD and types of behavioral disorders?

A That is correct.

Q Can you give us examples of the particular behavioral disorders that you are referring to?

A Yes. ADHD is attention deficit hyperactivity disorder. It's a disorder that involves essentially two broad sets of symptoms. One set is inattention and disorganization, and these are symptoms like difficulty sustaining attention, difficulty staying focused on a topic, trouble having -- engaging in mentally demanding tasks and trouble staying organized.

The hyperactivity and impulsivity is the second set of symptoms in ADHD, and these are things like talking too much, having trouble with interrupting or butting into what people are doing. In younger kids you see a lot of fidgeting, trouble staying seated. In adults it tends to be more getting overly kind of excited and boisterous.

I should clarify that for the ADHD diagnosis, you can have really one of the two sets and still meet the diagnosis. Most of the children and adolescents that we see, though, have both together.

The other set, the DBD part, refers to disruptive behavioral disorder, and these are disorders that involve persistent oppositionality or rule-breaking behavior, and there are two types of those disorders. Oppositional defiant disorder tends to be associated with younger children although you can have it in adolescents, and that is more just a

persistent oppositionality, resistance, defiance, anger, things like that.

Conduct disorder is the second disruptive behavior disorder, and that tends to involve more serious, status-type offenses, fire setting, fighting. Many children with delinquency, for example, will qualify for a conduct disorder diagnosis.

So I treat with kids with attention deficit disorder and hyperactivity disorder and disruptive behavior disorder in that clinic.

Q Now, are the symptoms that you generally see in your clinical practice for children and adolescents different or the same than those displayed by adults that you treat?

A We see developmental changes in symptoms, and as a matter of fact, we will alter our treatments and our approaches and our assessments based on that.

For example, with ADHD in childhood, you might see more fidgeting and getting up out of the seat. In a 6-year-old in a classroom, that wouldn't be unusual in ADHD to see a child getting up when they are not allowed, wandering around the classroom, things like that.

That would be quite unusual in a 15-year-old, for example. So that is an example of a symptom that would be different in adolescents. And it would be considered, frankly, quite strange in an adult, for example, if someone in here were

to get up and just start wandering around the room. So there are developmental differences in the symptoms.

Then in the treatments there are developmental differences as well. With children and adolescents, we tend to rely more on the environment for setting up situations that will promote good behavior. With adults, there tends to be a little more self-awareness and self-control, and we will work more with the adults on engaging them actively and setting up their life to acquire the better control.

You see a similar thing with oppositional defiant disorder and conduct disorder where there tends to be less control at the younger ages, somewhat more control at the older ages.

Oppositional defiant disorder and conduct disorder, you really don't see persisting into adulthood per se. At least it is not really followed into adulthood because if it continues on the path of delinquency, then it becomes criminality and it goes over to a different system in adulthood.

Q Now, you indicate there's a qualitative difference in the treatment protocols. Why is that?

A It's because there's differences in the way that children and adolescents and adults process information that they actually have different strengths and weaknesses, and certainly you see a progression of increased self-control as you reach

toward adulthood.

We have, for example, behavior checklists where there are norms that show that, that you get increased self-control.

Q In the course of your clinical practice, how do you generally come to evaluate a patient who potentially has ADHD or some other disruptive behavior disorder?

A Typically in children and adolescents, what happens is they arrive at my clinic because something is happening that is impairing their quality of life: They are struggling in school, their teachers notice problems, they are rejected by their peers.

And parents -- sometimes the teacher brings it up, sometimes the parent brings it up, but a determination is made by the adults in their life that these things are interfering with their quality of life, and at that point they would come down for an evaluation. And the rationale for treatment is to improve the child's quality of life or the adolescent's quality of life.

Q When you say quality of life, are you referring to certain tangible behavior?

A These could range from things, social rejection, all the way to failure, flunking out of school, detentions, things that could -- yes, relatively concrete stuff in their day-to-day life.

Q Do you perform any types of tests in the lab or checklists

and tests for some of the areas concerning attention?

A Yes, we do.

I should clarify that when we make a diagnosis of attention deficit hyperactivity disorder, we rely on interviews and information obtained predominantly from parents and then using school information as well. We do not use lab-based tests to make the diagnosis.

Once the diagnosis is made, then we need to make decisions about where the weakness areas are, things that we need to do to improve functioning.

Lab-based tests can help us to understand how the individual is processing information, so that then we can make recommendations to parents and teachers to promote better processing of that information. So they are not used in the diagnosis, but they are used in the understanding.

Q What type of lab tests are you referring to?

A To some extent that would depend on the diagnosis and what the child is showing.

Frequently we will look at IQ tests because IQ tests tell us something about how well they are able to understand what is going on in their world. We will look at other tests of specific functions like attention and concentration and memory to -- if we think that those are problem areas.

Now, in ADHD and, to a large extent, in disruptive behavior disorders as well, self-control can be an issue; and

so because concentration and inhibition are involved in self-control, we will sometimes use tests of what are called executive functions. And examples of tests like that are the the Stroop color-word test, the Conners continuous performance test. These are tests that we use fairly frequently in my clinic.

Q Can you describe for us in general how you use the Stroop color-word test in general?

A Sure. The Stroop color-word test essentially is a test -- it has multiple parts, but the key part of it involves words: Red, green and blue. They are written in different colors of ink. So you might have the word "red" and it's written in green ink, or the word "blue" and it's written in red ink.

The individual has to tell you the color of the ink the word is printed in, ignoring the word that is printed in each item. Now, reading words tends to be a relatively automatic thing for people to do and it's fairly easy. Naming colors is more difficult.

So what the individual has to do as they are naming these colors is they have to resist that impulse, the much easier impulse to just name the word or read the word and say the color.

What you see in individuals that have trouble with that inhibition is they will periodically, sometimes fairly frequently, they will read the words, and you have to say, "no,

name the color." And so that tells us something about their ability to inhibit an easier response in favor of a more difficult response.

We use that test because it has been correlated with measures of disinhibition, and specifically with ADHD symptoms in the real world. ADHD symptoms are good measures of inhibition because that is kind of the core part of that disorder, but inhibition is present in other disorders as well.

The Conners continuous performance test is kind of a similar thing. You see letters flash by on a screen one at a time. They are about maybe an inch to an inch and a half high. They flash by at one-, two- or four-second intervals. Nine out of ten letters are not Xs and you're supposed to hit the space bar on your computer after every letter that is not an X.

So what happens is you get used to hitting that space bar 90 percent of time. Then an X comes up and you are not supposed to hit the space bar. So like any task that you do repetitively, you have to hold back on the pressing of the space bar when the letter X comes up. So that is an inhibition of that easier response as well as a focus on that test.

And like the Stroop, the Conners continuous performance test has been correlated with real world behaviors.

Q Now, you state that some of these tests involve testing a child's ability to exercise executive functioning. What do you mean by executive functioning?

A Executive functioning, broadly speaking, is the ability to plan, organize, direct, and carry out behavior that is oriented toward a goal. So it's basically that process that keeps you on task through a process of behavior to reach a goal.

In kids, particularly kids with ADHD and disruptive behavior disorder, what you see being a problem in executive functioning is disinhibition, essentially that they don't inhibit responses that interfere with their ability to reach a goal.

So the Conners continuous performance test and the Stroop color-word test measure that type of executive functioning.

Q Other than the Stroop color-word test and the Conners continuous performance test, are there any other types of testing that could be used to check a child or adolescent's executive functioning skills?

A Yes, there are lots of executive functioning tests. And there's multiple areas of executive functioning.

So when you are doing testing, you're picking an important candidate area to evaluate; and the reason that we use the Stroop and the Conners is that there is -- that those tests both in terms of, you know, clinical background and what we know clinically and in terms of correlations and research studies have been shown to correlate with real world behaviors of interest. Executive functions in the real world I guess is

what I would say.

Q Dr. Kronenberger, have you conducted any firsthand studies or research on aggressive behavior in children or adults -- actually, I am sorry -- children or adolescents?

A Yes.

Q Do you conduct this by yourself or do you collaborate with other researchers?

A Virtually all of my research and certainly all of my research on aggressive behavior is as part of a research team. So we have teams of people that bring together different abilities so that we can do the research.

Q In general, what type of specialists or practitioners make up this team?

A To some extent it depends on what we are studying. In the case of our studies using neuroimaging, we have clinical psychologists, neurologists, social worker, neuroradiologists, physicists and neuroscientists on the team.

Q Then do you consult with each other throughout the course of the studies, or is everybody independent?

A We meet regularly.

When we go over findings, we meet when we can as a whole group. Obviously, occasionally people are out of town and things like that, but we try to bring the group together as many people as are there to review research finding and to share our interpretations of different results from our

different perspectives.
Q Have you conducted any firsthand studies or research on exposure to media violence?
A Yes.
Q In the particular context with adolescents, have you done any firsthand research studying the exposure of media violence on adolescents?
A Yes.
Q Did you find any type of relationship between the exposure to media violence and these teens?
A Yes. We have one study where we showed that teens with more -- with histories of disruptive behavior disorder and aggressive behavior report, and their parents report, more media violence exposure than teens from what we call a control sample that did not have that history.
Q What types of media are you referring to when you say that you study media violence?
A We study teens' and parents' reports of television and video game violence.
Q Is it all video games?
A Well, when we ask them the questions, we ask them questions about different types of video games, but some of those questions are also about violence in video games.
Q Have you done any research involving media violence exposure in adolescent brain activity?

A Yes.
Q Have any of these studies been reported or published in any publications?
A Yes. We have --
Well, again, depending on how you define brain functioning, we have one publication in a peer review journal that used functional MRI. We have one publication of a peer review journal that used what we call neurocognitive testing. We have, well, two presentations that we rely on that involved functional MRI as well.

Q Dr. Kronenberger, are you being retained as an expert in this lawsuit?
A Yes.
Q And are you aware that the lawsuit involves a statute or a law related to violent video games?
A Yes.
Q What have you been asked to do as an expert in this case?
A I've been asked to provide opinion and interpretation of my research.
Q Are you asked to make any types of conclusions about your research?
A Well, I've been asked to state how I interpret my research results. Oh, also I think I was asked if my research results were consistent with a part of the finding of the legislature.
Q And what is your understanding as to what part of that Illinois legislature finding you're supposed to --
A I would have to see it to know the exact quote, but in so many words it says violent video games affect the brain functioning of children.
MS. LIU: Your Honor, I would like to introduce some documents to the witness.
THE COURT: As far as exhibits, have people talked about them so that we don't need to go through some huge foundational thing? I'm guessing that -- are you talking about journal articles, things like that?

MS. LIU: These are all documents that either have been attached to his declaration, including the declaration, or part of the pleadings.

THE COURT: Okay. Is there any objection to the use of any of those? Fine.

MS. LIU: May I approach the witness, your Honor?

THE COURT: That's fine. No need to ask. Just go ahead and do it.

BY MS. LIU:

Q Dr. Kronenberger, I'm handing you what's been marked as Defendants' Exhibit Number 1. Would you take a look at the document and let me know if you've seen this before?

A Yes. This is my declaration.

Q Could you identify for the record what it is?

A This is my declaration, and there's attachments in the back, and I can't say whether they were -- I assume they were part of my declaration before

THE COURT: They were.

BY THE WITNESS:

A And should I check to see if all of the key articles are here or -- I mean, it looks like it's the key articles that are here.

BY MS. LIU:

Q Now, you mentioned that there's some articles attached or presentations. Can you just identify for the record what those

are that's attached to your declaration?
A The one in the back, the last one, is the Matthews 2005 article, and I usually just refer to it as the Matthews 2005 article. It looks like going forward the next one --
THE COURT: It looks like a power point of some kind.
BY THE WITNESS:
A Actually, yeah, it's a presentation. It almost -- actually, I think it's a mix of -- it looks like the Kalnin presentation. Yeah, it is. It's the Kalnin 2005 presentation. And I think that that's all there -- there were other presentations. There was one other -- let's see. One other presentation by Wang in 2002 that I used in my declaration, and there was -- in terms of neurocognitive functioning, there was an article that I first authored in 2005 that's not attached, but it's there.
BY MS. LIU:
Q Did you participate in the two articles or presentations, the Kalnin 2005 you've referred to and the Matthews publication? Did you participate in those particular documents?
A Yes, to differing degrees, obviously, in each one, but I was a key participant in each one.
Q And did these documents or materials form part of the basis for your opinions or your statements in your declaration?
A Yes.

Q And you also mentioned that there are some other articles on neurocognitive testing?
A That there was an article that I first authored in Journal of Clinical Psychology where we used two neurocognitive tests and two, essentially, behavior checklists where we had parents and teens report on the teens' behavior in the real world.
Q Dr. Kronenberger, I'm handing you what's been marked as Defendants' Exhibit 2 and Defendants' Exhibit 3, and can you identify those for the record?
A Yes. These are the two peer-reviewed published articles that I first authored.
Q And what do you mean by peer review?
A When you send an article to a peer review journal, what happens is the editor gets the article, and they send it out to people that the editor has identified as experts in that area of the field, and then they review it and decide if it's worthy of publication in the journal, and they provide feedback on strengths and weaknesses of the article.

And at a very basic level, they say whether it should be published in the journal or not. They also say if it should -- if they feel like it's publishable information, they'll provide questions that they have about it. Some journals are blind peer-reviewed, which means that they -- you know, the author doesn't know who the reviewers are. And again, to the best of my knowledge, both of these are blind

peer-reviewed journals.
Q And can you just identify for the record which is 2, which is 3? These exhibits. Just identify for the record.
A Oh, sure. Oh, sorry. You mean the exhibit number? Yeah. Two I sometimes refer to as the Journal of Clinical Psychology article. It is the one where we use tests of neurocognitive functioning, namely the Stroop color-word task and the Conners continuous performance task. We did use other measures in that study, but --
Q And are you the primary or principal author on this publication?
A Yes.
Q Can you identify the next one, Exhibit 3?
A Exhibit 3 is an article where we looked at differences between adolescents with either disruptive behavior disorder and aggressive behavior versus control adolescents who did not have that kind of behavior on measures of media violence exposure.
Q And are both these articles, the Kronenberger articles under Defendants' Exhibit 3 and 2, they also form part of the basis for your opinions or the statements contained in your declaration?
A Yes.
Q When were you first retained as an expert in this case?
A I got a phone call in August -- or I returned a phone call

in August to I believe it was Matt Ryan of the Governor's office, and then a few weeks later -- well, probably within about a week, I agreed that I would be retained in the case, and then a few weeks later, I think, is when I was put in touch with your firm.

Q Now, are you being compensated for your work in this case?

A Yes.

Q What is your compensation arrangement?

A $200 an hour.

Q What did you do to prepare your declaration in this case?

A I reviewed literature. I used my own background knowledge and my own clinical background. I wrote drafts and communicated with you about them. I asked you questions about what a declaration is and how to write one. I think that basically captures it.

Q Did you look at any scientific literature that would form part of the basis for your opinion?

A Yes.

Q And did you also look at your own publications?

A Yes.

Q Do you know what functional magnetic resonance imaging is?

A Yes.

Q Can you describe that for us?

A Functional magnetic resonance imaging is a --

THE COURT: Why don't you just call it fMRI so she

doesn't have to write it down every time.

THE WITNESS: Great.

BY THE WITNESS:

A fMRI is a neuroimaging technique that allows you to detect activation in certain regions of the brain using relatively noninvasive technology, meaning you don't have to put something in somebody's bloodstream or anything like that. The way that that activity is detected is based on the blood flow to certain regions of the brain and some of the magnetic properties of blood flow.

So, activity in regions of the brain is inferred based on changes in blood flow to certain regions of the brain. And so, you'll hear the word or the acronym BOLD, which is blood oxygen level dependent, which is just a fancy way for saying we look at magnetic properties of the blood to detect the blood flow to certain areas of the brain, and based on that you infer changes in brain function.

BY MS. LIU:

Q And have you used fMRI in any of your studies or research firsthand?

A As a part of my research team, yes.

Q When did you use fMRI in particular?

A We used fMRI in our -- essentially in our studies of adolescent media violence exposure and brain functioning.

Q And what are you trying to measure when you say activation

in the brain?
A Well, we're trying to measure the activity in certain regions of the brain based on literature review and also just general understanding of what the functions of different regions of the brain may be and what activation in those regions is associated with.
Q So, can you give us an example, for instance, of what fMRIs will show you in terms of brain activation and what else is going on?
A Sure. So, you may do fMRI while an individual is engaged in a certain task in the scanner. If it's functional, typically you're going to have the individual engaged in some task in the scanner because there's got to be a function going on. So, they'll engage in some task in the scanner, and then the fMRI essentially captures the difference, the change in blood flow during that task, as compared to a control task. You essentially attempt to separate out some other things that are going on in that task from whatever function it is that you're trying to get at.

And so, if you have an individual doing a concentration task, you would try to design a control task that accounts for everything except the concentration in that concentration task, compare the blood flow in those two tasks, and then the activation in that region of the brain would be associated with concentration. And, for example, in

concentration it's common to look in the prefontal cortex and the anterior cingulate cortex of the brain.

Q Why do you say it's important to look at the prefrontal cortex or the anterior cingulate cortex?

A Well, in our group, essentially, number one, you go on people's backgrounds and background knowledge, and the prefrontal cortex and the anterior cingulate cortex was pretty much generally agreed on in our group as critical areas involved and associated with attention and concentration, self-control, inhibition. The other thing that you go on is you review relevant literature that has already studied the functions of those areas.

Q Dr. Kronenberger, do you or have you ever designed any research using fMRI?

A Yes. Again, as a part of that clinical team.

Q In particular, any research or studies using fMRI in the media violence exposure in adolescent brain activity research you've discussed?

A Yes, I have designed.

Q And the exhibits that we've introduced, the publications and the papers, the two that are attached to your declarations and then the two that are authored by you, do any of these involved fMRI studies?

A The two that are attached to the declaration involve fMRI. The two -- can I call them Exhibit 2 and Exhibit 3?

THE COURT: Sure.
BY THE WITNESS:
A The Exhibit 2 and Exhibit 3 were from the same study where fMRI was the -- the same project, I should say, where fMRI was part of that project, but they don't use the fMRI methods. There's also another one that I don't have that I relied on that's Wang 2002, and that used fMRI.
BY MS. LIU:
Q And was that cited in your declaration?
A Yes.
Q Do you design any of the actual fMRI paradigm that's being used?
A Yes. I should clarify that when we say paradigm, we mean essentially the task that the subject is doing in the scanner. So, the way our team works is the neuroradiologist and the pediatric psychologist -- that's me -- sit down, and I work on the task that I expect will be relevant in the scanner, again because I do a lot of psychological testing, and the tasks in the scanner look a lot like tests, and the neuroradiologist also knows a little bit about testing, but a lot about neurology and neuroradiology, and we collaborate on looking at the data, the literature, and our background to make an inference that that particular task is going to activate a region of the brain that's a region of interest to us.
Q What is your understanding of neurocognitive testing?

A Neurocognitive testing is not neuroimaging. It is essentially laboratory-based performance tests. And by laboratory-based, I mean office-based. Essentially they come into a testing office. So, it's a laboratory-based performance test where we evaluate how well the subject, the participant or patient, does on that test, and that reflects an ability that has been shown to relate to an aspect of brain functioning.

Q And have you yourself ever designed or codesigned any neurocognitive testing specifically with studies related to media violence exposure and adolescent brain activity?

A Yes.

Q And are they also reflected in the exhibits we've discussed?

A Yes.

Q Can you briefly describe your research on the relationship between media violence exposure and adolescent brain activity?

A At the most general level, our research has sought to look at differences between adolescents with high versus low exposure to violent media, and then we have looked at certain processes, certain activation of brain regions that we've identified as candidate regions based again on literature, review, and understanding of the context of science to be important or relevant to look at.

Q And your research, this is all people under the age of 18?

A Yes.

Q They do not include any adults?
A No.
Q And were there parts of this research? Have you completed all of the research?
A There are -- essentially, right now we are in what we call phase three. We call them phases. A phase really is just a big research project. It essentially is a protocol that you write. And there have been two phases that we've completed. And I'm not sure how's the best way to go through them all, but there's phase one, which was our first research, and in phase one what we intended to do was to look at adolescents with high versus low media violence exposure, and based on our review of the literature, what we sought to do -- essentially, there's literature that shows that media violence exposure is related to aggressive behavior. Then there's additional literature that shows that aggressive behavior is associated with activation in certain brain regions.

And so, following that line of reasoning, we looked at those brain regions, wanting to come back and see if there was that relationship with high versus low media violence exposure. And phase one was looking at the brain regions that tended to be more associated with self-control and inhibition and things like that because that had been written about, and these were prefrontal regions and the anterior cingulate cortex.

Phase two essentially took the direction a little more

into the emotional area because there had also been writing and research about aggression in emotional areas -- I should say areas of the brain that were associated with emotional functioning.

Phase three is experimental study where -- I can talk about that.

Q Now, you were involved in the design of -- let's talk about phase one. Let's start with phase one.

A Okay.

Q You were involved in the design of the study?

A Yes.

Q How did your team select subjects?

A We advertised widely. We wanted to get a broad set of subjects. We received numerous phone calls, probably in the low one hundreds. We do a screening process, and the screening process is to make sure that they meet criteria that we set for study entry.

So, probably most relevant was we wanted to look at two clinical groups in phase one. One was again this DBD group which I've talked about before, disruptive behavior disorder. So, these are kids with either oppositional defiant disorder or conduct disorder, which I described earlier. But we also required that they have what was called aggressive features, and this was one of, I forget, seven or nine criteria that are specified in conduct disorder that we identified as being

reflecting aggression. So, we had that group. They had to have the DBD diagnosis and the aggressive feature.

The other group was the control group, and that group had to have no diagnosis using the Diagnostic and Statistical Manual that's used in psychiatry. It's called the DSM-IV. So, they had to have no diagnosis and no visit to a mental health professional in the past three years. So, those were our two groups.

When people called in, we screened them for one or the other, and, as a result, some got screened out, and there's other reasons. They don't need screening. Sometimes when they find out the time demands of the study, they say no. We ended up with 71 participants that actually showed up for a visit. It was a two-visit protocol. We ended up with 71 that showed up for visit one.

Q How do you screen for this DBD group in your subject selection?

A Well, there's a two-stage process. When we say screening, what we mean is they call in on the phone, and we hate to have them drive all the way down to find out that they can't participate in the study. So, there's a very brief screen that takes place on the phone. We don't really use that in our research. That's more for the convenience of the subject.

Then when they come down, we establish the diagnosis of -- we look at three diagnoses very carefully, ADHD, conduct

disorder, and oppositional defiant disorder, and we use a measure called the Kiddie SADS, which is -- it's called a semistructured diagnostic interview. It's K-i-d-d-i-e S-A-D-S. Actually, K-SADS is another abbreviation for it, which may be easier.

The Kiddie SADS essentially takes the diagnostic criteria in the diagnostic manual and operationalizes them so that the individual who's making the diagnosis, they will make a highly reliable diagnosis. And Kiddie SADS is considered a gold standard of diagnosis. For example, Kiddie SADS is used in studies when you're looking at disorders and in medication and you're submitting them to the FDA. So, it's considered a high standard.

For all other diagnostic criteria besides ADHD, conduct disorder, and oppositional defiant disorder, we used a questionnaire that essentially has many other criteria from many other disorders, and then when the parents finish completing that questionnaire saying whether they were present or absent, if there were patterns where they said things were present or absent, then we sat down and conducted more of an unstructured clinical interview with them in order to establish whether their report on the questionnaire seemed to fit. So, that was for the other diagnosis.

Q Now, during the selection process for your subjects, do you control or match for any particular variables?

A Yes. Well, in phase one and -- well, actually, I believe in all of our studies thus far we have matched for age plus or minus two years, IQ plus or minus a half standard of deviation, which works out to about seven or eight IQ points, and gender, and we match our DBD and control groups on that so that there is not a systematic difference between the DBD and control group.

So, as a result, only though 71 might show up at our door at visit one, the amount we use in analysis might be lower because we can't be confident -- of course, you can't know ahead of time that everybody's going to have a match.

Q Do you have to make any assumptions about the subjects that you're selecting?

A Assumptions.

Q About the control group or the DBD group related to your research.

THE COURT: He's wondering what you're looking for. So, be more specific.

BY MS. LIU:

Q Do you need to make any assumptions about why you would use the DBD group for this research?

A Well, the reason that we sampled it, yeah. We're doing high versus low media violence exposure, so the questions were why use the DBD group. The reason we're doing the DBD group is if you remember our logic of progressing from media violence

exposure, aggressive behavior, and brain functioning, we wanted a group that had that aggressive disruptive behavior so we could look at them in the context of the brain functioning studies, as well. There's not a lot of literature out there on fMRI and aggressive adolescents, and so we felt like it was important to include that sample in our research. You know, we also wanted to look at -- we also wanted to see whether aggressive history made any difference in terms of our findings.

Q Now, how do you measure media violence exposure in this experiment?

A We have a measure called the MEM, the media exposure member, M-E-M, and the MEM -- it's a complex measure, but it boils down to essentially six scores that you get at the end point. I should say as long as you all understand that we're simplifying here. But there's six scores. There's a measure of television violence exposure reported by the adolescent in the past week, and we do that by literally taking the adolescent through their past week and asking them exactly which television shows they watched, asking them what they saw on the television shows in terms of different kinds of violence and injury and things like that.

We do a similar thing with video games over the past week from the report of the adolescents. You have television past week adolescent report, video game past week adolescent

report. Then we ask the adolescents to make an estimate of the past year. So, in general how many hours of television do you watch during the week in the past year. Then we go through the same kind of steps with like the levels of injury or violence on television in the past year. So, then you get an adolescent estimate past year report. You do the same thing with video games. You get an adolescent past year video game.

And then we go to the parents, and we ask them for the past year how much violence their adolescent has been exposed to in television, in video game from the parents' perspective. So, you get six measures. Television past week adolescent, video game past week adolescent, television past year adolescent, video game past year adolescent, television past year parents, video game past year parents. So, you have these six indexes. Oh, I should say the reason we don't do past week parent is the past week thing, remember, is like a daily diary, and parents simply don't have that level of knowledge about what their adolescent is doing every minute.

Then what we did is we looked at do these -- assuming that there is this thing called media violence exposure, there should be some correlation between some of these, and we used a technique called factor analysis and looked at how well these six things hung together, and what we found was that five of them hung together fairly well, well enough for us to add them together. A sixth one, parent report of adolescent television

violence exposure during the past year did not hang together with the first five sufficiently well for us to include it on the media violence measure.

I know it's a long explanation, but since it's kind of our measure of media violence, it's kind of important to know. So, it's those six things, but not the sixth, not the parent television violence exposure. So, we add together the five to get a media violence exposure index.

And then in our fMRI studies what we do is we go one step further and we divide the adolescents into high and low media violence exposure by essentially just cutting right down the middle. Anybody above is high. Anybody below is low. Mostly that's for convenience of the fMRI results.

In the neurocognitive study, which is the Kronenberger one, the statistics that I run, I can just use the media violence exposure index as a continuum, just exactly as we add it together and calculate it.

Q So, you mentioned you use the MEM, the violence index for fMRI when you're doing scanning, and you also use it in the neurocognitive testing?

A Right. We used it as our measure of media violence exposure. We don't do it in the fMRI, but yeah. I mean, we don't do it in the scanner. You know what I'm saying.

Q What are the tasks that you use in the fMRI scanning?

A In phase one, which again phase one you can think of more

as our phase where we tended to look at frontal lobe functioning and anterior cingulate functioning. In phase one we used what's called a counting Stroop in the scanner, and I described the Stroop color-word before where the interference is between the words you read and the color of ink that the word is printed in. Well, in the scanner we opted to use what's called a counting Stroop, which has been used by other people, too, but -- or versions of it have been used by other people.

THE COURT: Say again. A counting --

THE WITNESS: Counting Stroop.

BY THE WITNESS:

A So, you still try to get the interference, but --

THE COURT: Stroop.

THE WITNESS: Stroop. It's not a great -- Stroop basically means you kind of -- it's easier to do one thing, but you got to hold back and do the other. So, it's easier to read the word, but you got to hold back and do the color.

THE COURT: Okay.

BY THE WITNESS:

A The counting Stroop what happens is you might see -- the stimulus might be one, one, one, the numeral one three times, and you have to push a button corresponding to three. And then it might be two. So, the numeral two, but it's only one time. You have to push a button corresponding to one.

The easier task, obviously, when you see a numeral is just to name the numeral, but in the counting Stroop, in the key part of the task, what happens is you have to push the button that's for the harder thing to do, which is say the number of numerals that you see.

THE COURT: How many times you've seen it, in other words.

THE WITNESS: Well, it's how many numerals are there. So, if it's two, two, two, the answer is three, not two.

THE COURT: Got it.

BY THE WITNESS:

A And what you'll find is some subjects will hit two because, you know, that's kind of like "Two. Oh, sorry," you know. "That was a mistake." Because again the easier response is the numeral identification. So, we use the counting Stroop.

As an aside, the reason we use the counting Stroop in the scanner is people are pretty good at identifying one, two, and three with certain fingers, but red, green, and blue don't go with fingers quite as easily. It's not that you can't do it in the scanner, but it's not as intuitive, and our concern was that we would get other patterns of brain activation that might interfere with our results a bit. You can still do it, but, anyway, we like the counting Stroop better.

So, that was one of our measures that we used, and that was what was used in the Matthews study. What we used in

the Wang study, which was a presentation -- and I should say I'm calling them different studies, but you're talking about the same project.

BY MS. LIU:

Q We're still on phase one.

A Phase one.

In the Wang study it was a little bit different. We used a comparison of two video game -- simulated video game play, basically. We couldn't have the subjects play the video game in the scanner because of the technology. You can't have metal, you know, in a real powerful magnetic field. It interferes with the magnet, and it can be dangerous. And so, they've made some joysticks that you can get in there, but we weren't comfortable and actually at the time we ran this data may not have even had them yet. So, we tried to find the best way we could to simulate video game play.

The other thing that we wanted to make sure happened was that everybody did the same video game while they were in the scanner. Of course, the only way to do that is to have some videotape that you run. So, when I call it video game play, I should clarify. I hate to make mistakes or be inexact. I really don't mean video game play. I mean simulated video game play. It wasn't just video game watching because what we told them was you're going to see a video in the scanner, and it's either going to be a James Bond video game, which is a

first person shooter game where you go through these kind of hallways and you shoot people, and or it's going to be a car racing game, which is kind of a competitive racing game. And we told them we want you to watch it, but we also want you to simulate play. We want you to push a button if you want to shoot. We want you to push a right or left button if you want to turn. Again, I freely acknowledge that, you know, it's simulation and not actual play. On the other hand, the fact that we had them doing something we felt was more accurate than just having them watch the video game play. So, that was the Wang study.

And what we did was we subtracted out the activation during the James Bond game from the activation during the car racing game because otherwise you end up with -- you know, you don't know if it's video games in general or whatever. You try to match them as closely as you can.

I should say in the Stroop task you do the same thing. So, even though you have the one, one, one or two, two, you have a subtraction task where -- because they also have to watch or push buttons, you have a subtraction task, and for that it's just X, X or X, X, X. So, there are no numerals, but they're just responding to the number.

THE COURT: Pause for a second.

THE WITNESS: I'm sorry.

THE COURT: When you say in the scanner, what does

this equipment look like? Physically what's it like?

THE WITNESS: It looks just like an MRI. So, it's a tube.

THE COURT: It's a tube.

THE WITNESS: They lay down on a -- kind of a moving table. Different fMRIs are done different ways. In our fMRI, they have like a prism where we can show things on a computer screen and -- a mirror, you know, and they can see it on the mirror, and then we watch the computer screen so we can, you know, make sure that the task is actually going on. And then there's like this -- their hand is down, and it's on like a pad where they can push buttons.

THE COURT: So, in other words, the person is prone, as they would be in a normal MRI test.

THE WITNESS: Absolutely.

THE COURT: And what they're seeing, they're seeing it on a mirror that's reflecting a computer screen, and they've got some sort of a keypad at their hand that they're using to push as you described.

THE WITNESS: That's exactly what happens. And while the -- I mean, it is an MRI. There's like computer programming and physics, and this is why I work with a team.

THE COURT: I just wondered if it was a different type of device altogether. Okay. Go ahead.

BY MS. LIU:

Q So, in your MRI study, what are you looking for when you're scanning the brain?

A So, we wanted to look at two things in phase one. As a first part of our studies, looked at differences between the control group and the disruptive behavior disorder group to see if we were getting differences in brain activation between a group that was known not to have aggressive behavior and a group that was known to have persistent aggressive behavior, and we looked in candidate brain regions that we had identified based on our earlier understanding, and in phase one those candidate brain regions were the dorsolateral prefrontal cortex and the anterior cingulate cortex. If it's too inconvenient, I'll spell them out every time, but DLPFC is dorsolateral prefrontal cortex, and ACC is anterior cingulate cortex.

So, we compared control and DBD groups on their activation in those regions. And I should say if I say functioning, what I mean is activation. This is essentially based on that blood oxygen level thing that I talked about before.

So, you have these two groups. You're comparing them on their functioning. You have these candidate regions that have been shown in other studies of aggression and brain functioning to be potentially important areas associated with differences between groups.

Then the second level of differences is high versus low media violence exposure. So first we look at control versus DBD to help us understand the brain regions. Then we look at high versus low media violence exposure.

Q Why are you choosing the dorsolateral prefrontal cortex and the anterior cingulate cortex?

A There are two regions -- two reasons.

One reason is that individuals who have summarized the literature on brain functioning and aggressive and violent behavior have said the prefrontal cortex, including the anterior cingulate cortex, is an important region of the brain in this type of behavior. It tends to be associated -- actually lower activation or deficits or injuries to that region tend to be associated with aggressive or violent behavior.

They also identify some regions that they think are more related to emotional functioning or anger. Now, that wasn't the purpose of phase one, but I can talk about that when we get to phase two.

So the prefrontal cortex is a large area. The anterior cingulate cortex, you know, is an area. And then you design, you know, tasks that you think your subjects can do and that you think are good tasks for them to do in the scanner and that relate to the real world.

So we chose the Stroop because it had been widely

used, it related to real world behavior, you know, and we knew from prior study that the Stroop tended to result in activations of the anterior cingulate cortex and a subregion of the prefrontal cortex called the DLPFC. Now, there are other regions of the prefrontal cortex, but we did not expect -- this is based --

Actually I do mean we, the team, did not expect based on our experience that we would see activation broadly outside of the dorsolateral prefrontal cortex and the anterior cingulate cortex. So those were our regions of interest within the broader prefrontal cortex.

Q If we just look at what the results from the published finding under the Matthews 2005 article were, can you tell me what were the findings?

A Yes. In Matthews 2005, and, again, that was the study that used the counting Stroop, when we did the first comparison of controls compared to DBDs, we found activation of the anterior cingulate cortex, the ACC, and activation of the left dorsolateral prefrontal cortex in the control group.

In the dorsolateral prefrontal cortex, the key areas there are the middle frontal gyrus and the inferior frontal gyrus. These are two key areas of the dorsolateral prefrontal cortex. So you have the dorsolateral prefrontal cortex and then subareas, the middle frontal gyrus, inferior frontal gyrus. That was in the controls.

In the DBD group, we did not find the anterior cingulate activation. We found activation on both sides of the brain bilaterally of the middle frontal gyrus. So this is a part of the dorsolateral prefrontal cortex.

Now, based on prior research and our expectations, our interpretation of that was that the control sample showed increased activation in the anterior cingulate cortex and in certain important regions of the dorsolateral prefrontal cortex; namely, the inferior frontal gyrus that was different from the DBD group.

So then we looked at high versus low media violence exposure. In that article really our focus was on -- we decided to focus on control, the control sample with high versus low media violence exposure. There are a few reasons for that.

Actually we also did look at all high versus all low media violence exposure, but if you look at all high and all low media violence exposure, while it is an important comparison, in your low media violence exposure group, you are going to have some kids that have DBDs and are aggressive. So you have -- you just have to be aware that you have got kind of a mix of people there.

If you use your control sample, you know that you have an all nonDBD group. Then you can compare high and low media violence exposure within the control group. When we did that,

we found that the low media violence exposure control group showed activation in the anterior cingulate cortex, ACC, and the left inferior frontal gyrus, that part of the dorsolateral prefrontal cortex.

That matched up to a large extent the increased act-- or the activation of the anterior cingulate cortex and the activation of the left inferior frontal gyrus matched up with what we had seen in controls and we didn't see that in DBDs.

When we then turned our attention and looked at the controls with high media violence exposure, we found that they showed activation in the left middle frontal gyrus. Again, that is a part of the dorsolateral prefrontal cortex, but it's the part also that we saw activation in the DBD sample.

So in terms of -- you know, you start a study, you have your expectations, your candidate areas, you're looking. You might get exactly what you expect and you might have some deviations.

And so to kind of characterize it, where do we get exactly what we expected? Anterior cingulate cortex, we found low media violence exposure and controls associated with anterior cingulate cortex activation. That was consistent with that line of reasoning that I talked about.

We also found for a key region of the dorsolateral prefrontal cortex; namely, the inferior frontal gyrus -- we found low media violence exposure and controls associated with

increased activation of that region. Where we did not get what we expected was this middle frontal gyrus area where we found more activation in the middle frontal gyrus in the DBD sample and in the control high media violence sample.

Now, we did have the control with high media violence showing that similarity to the DBD sample, but, again, a priori, we did not expect a dorsolateral prefrontal cortex region to show increased activation in either the DBD group or the high media violence exposure group.

So I know that's a long explanation, but that's --

THE COURT: Let's take a break right there. We are going to go until 12:30. So we will take a 10-minute break.

THE WITNESS: Okay.

(Brief recess.)

MS. LIU: Your Honor, I just wanted to address briefly a point.

The parties, both sides, actually stipulated previously to the qualifications of the experts to testify on the scope of their declarations. So I just wanted to put that on the record.

THE COURT: Okay, that is fine with me. I have read all of it, so people don't need to go through that except to the extent that you think is necessary.

BY MS. LIU:

Q Dr. Kronenberger, you were testifying earlier about the

different findings with respect to activations in the adolescent brain activity.

A Yes.

Q Under the Matthews study, the 2005 study, is that correct?

A Yes.

Q I think you had described the dorsolateral prefrontal cortex and what it does. You also talked about the amygdala. What does the ACC -- how is that implicated in brain activity?

A The anterior cingulate cortex has been found to be activated in tasks that involve choice between maybe an easier thing and a harder thing or two things that are sort of equally impulsive for you to choose between. Typically it's where the ACC is activated.

And from those studies, people have inferred that the ACC is an important region of the brain in inhibition of automatic responses and choice between two responses where you have to inhibit an easier response in favor of a more difficult one.

It has also been found to be less active in individuals with a history of aggressive behavior.

Q Now, you mentioned that there were two fMRI studies that came out of this phase one. One was recorded in Matthews 2005. You also talked about a simulated video game play --

A Yes.

Q -- study.

Can you talk about the results from that one?

A Yes. The simulated video game play study was a presentation done by Wang in 2002. That was our research team. And I think I described a little bit about the methodology, so I won't go over that again.

But essentially subjects played simulated play of either a violent or a nonviolent game in the scanner, and we looked at differences in brain activation.

Again, we did our initial comparison between the adolescents with -- the control adolescents and the adolescents with DBDs looking at differences in brain activation.

What we found there -- and, again, using the violent video game as the paradigm, what we found there was the control adolescents showed activation in the left and right middle frontal cortex. And, again, if you remember, the DLPFC, two of the key regions of the DLPFC are the middle frontal cortex -- sorry -- the middle frontal gyrus -- I apologize -- and the inferior frontal gyrus.

So the control adolescents in the video game study showed activation in the middle frontal gyrus.

The DBD adolescents in that simulated video game play study showed activation in the inferior frontal gyrus.

When we then went and again looked at control subjects with high versus low media violence exposure, the control subjects with high media violence exposure showed activation of

the inferior frontal gyrus, and the control subjects with low media violence exposure showed activation of the middle frontal gyrus.

So, in that case again, we had our control subjects with low media violence exposure showing activation in an area; namely, in that case, the middle frontal gyrus that corresponded to the control group, and the control subjects with high media violence exposure showing activation in a region of the brain, the inferior frontal gyrus that corresponded to the DBD group.

It's notable that -- again, you take a step back and you say, okay, you went into the study with a hypothesis; you were looking at the dorsolateral prefrontal cortex, and you were -- you know, you were expecting to find based on, again, prior research, increased or greater activation in your control group and in your low media violence exposure group than in your DBD group and in your high media violence exposure group.

That was the case for a key region of the dorsolateral -- of the DLPFC; namely, the middle frontal gyrus.

However, again, we had results that were a little different than our expectations in terms of the inferior frontal gyrus. In that case the control high media violence exposure was showing some similarities to the DBD group, though.

Another issue to consider is that you remember in the

Matthews study, it was the middle frontal gyrus that tended to track with the DBD and the high media violence exposure group, and the inferior frontal gyrus that tended to track with the control and low media violence exposure group.

So in some ways you had the different brain areas being activated differently in the two studies. What is important to remember there is that the Matthews study used a Stroop test which involves a fair amount of concentration, and people typically don't say that it's so exciting that they could do it for hours.

In the Wang study, what we were studying, the paradigm in the scanner was a video game task, and that typically is seen as more interesting or more engaging, and people do report that they can do that for hours. So, yes, the brain function areas were different, but the paradigms themselves were quite different.

From a clinical standpoint, where that is relevant is what I see clinically in my practice is that individuals with ADD, attention deficit disorder, and DBD, disruptive behavior disorder, are able to stay focused typically on video games.

Video game focus is not concentration and I -- I'm borrowing from another psychologist here. I didn't come up with this concept. But video game -- staying involved in a video game this psychologist calls fascination, and I think that there is reason to assume that.

As a matter of fact, it's well-known, and we teach our residents that you should not make a diagnosis of ADHD or impaired executive functioning based on whether someone can focus on a video game. Many parents of children with impaired executive functioning ADHD who I see at our clinic come in and say the child has no attention deficit disorder when they are playing a video game.

Where you see an attention deficit disorder is when you have to do concentration which is different from fascination. Concentration is when you have to force yourself to engage in the task. It is not the kind of thing that typically grabs people's attention for hours. So I will have parents say: Well, I can't tell if somebody has ADHD -- if my child has ADHD or not because you sit him in front of a video game and he is totally focused for hours. I don't think he has attention deficit there. But his teacher says, as soon as it comes time to read or to sit quietly in the group or to listen, he has attention deficit disorder. What we explain is those are different stimuli.

So I know that is a long explanation. We talked about concentration and fascination, but it sort of fits with our understanding of why we may have seen differences in the brain regions in the Matthews study and the Wang study. The one similarity, though, is that in both studies, the high media violence exposure control group tends to track in brain

functioning. Now, it's not exact, it's not perfect, but it tends to be similar to the DBD group whereas the low media violence exposure control group tends to be similar to the control group.

So that is how we interpret the relevance of those results. That's the Wang study.

Q You also mentioned that you performed some lab-based neuro-cognitive testing as part of phase one?

A Right. That's the Kronenberger study, and it's the Kronenberger journal of clinical psychology study.

In the journal of clinical psychology study, what we wanted to do was to also look at performance indexes outside of the scanner to see if we would find the same sorts of results outside of the scanner and behavior that we were hypothesizing would be associated with our results in the brain functioning studies that I talked about before.

So we used four measures in that study. Two were laboratory-based neurocognitive measures. One was the Stroop color-word test which I have described before. Another was the Conners continuous performance test which I described before as well.

The other two measures were parent report of the child's -- or the adolescent's ADHD symptoms in the environment. We used a behavior checklist for that. So there's 18 criteria for ADHD, and you can answer "never,

sometimes, often, very often." And the parent answers that and you can get a score for ADHD.

The reason we use the ADHD score is that attention deficit hyperactivity disorder is the psychiatric disorder where the symptoms have been thought of as being most core to an executive functioning deficit. So we thought the ADHD measure -- the ADHD symptom report from the parents would be a good measure of executive function. We explain that in the article.

We did the same thing from the adolescent's self-report. So we asked the adolescents how hyperactive, how impulsive are you, and there is a scale that you use. Again, it tends to be a scale that is used more for ADHD. The same logic of reasoning, we use it as an executive functioning.

So to sort of summarize, two measures of executive functioning in the lab, one measure of parent-rated executive functioning behavior checklist in the real world, one measure of adolescent's self-reported functioning behavior checklist in the real world, executive functioning behavior checklist in the real world.

We then took our media exposure measure, our media violence index, and correlated it with each of those four. The first thing we did was we said, just what is the correlation, and we found that there was a significant positive correlation between -- or I should say it depends on which direction the

measure was scored. But there was a significant correlation between media violence exposure and poorer scores, so increased media violence exposure and poorer scores on each of those four measures of executive functioning.

The next step we went to was to say, can we control for or can we account for maybe some of the variables that might be sort of contributing to this relationship but are not media violence exposure. So you can do a technique called a regression where you can statistically take out the contribution of these other variables to your correlation.

And I believe we controlled for seven variables. Let's see if I can get them: Age, sex, IQ, total media exposure -- now, that's different from media violence exposure; this was just the total amount of media that they said that they watched or played in video games -- whether they had a DBD diagnosis or not and whether they had an ADHD diagnosis or not. So we controlled for those six or seven, at any rate, variables.

We knew when we did that that it was a stringent test. It's stringent because statistically the more variables that you put into this type of equation, the greater your risk that you will find that there is no relationship between two things when there really is a relationship. And it is a statistical principle.

In general, with a sample size of our size, you're

pushing your luck when you start to enter more than five variables or so, and we already had more than that. We thought it was justified because we wanted to do a very stringent test.

What we found -- when we accounted for all those variables was the Conners continuous performance test -- so one of the lab-based tests -- and the parent report of executive functioning ADHD in the environment continued to show that positive relationship with media violence exposure. So those two continued to be positive.

The Stroop color-word test was no longer statistically significant, but it was right on the margin. And the reason the margin makes a difference there is that is when you start to say maybe we made a mistake putting too many variables in, and if we had a bigger sample, it would have been statistically significant.

Now, you can't say without doing it, but you can warn that that might have happened. Remember the zero order correlation when we just correlated Stroop and media violence exposure was significant.

The self-report of executive functioning problems in the environment, that dropped out. That was no longer statistically significant. It didn't go down to zero, but it was not on that borderline. Our explanation in the article for that one was -- and this is fairly well-known clinically -- is that individuals are not -- particularly individuals with

executive functioning problems, are not very good at reporting on their own executive functioning because, if you remember, part of executive functioning is monitoring performance.

Well, if you are not good at monitoring your performance, but then I ask you about your performance, to some extent you may not be as good at rating yourself as other people are. For that reason, we do not use children's self-report to diagnose ADHD. We actually use an observer report, a parent report. So that was one thing that we thought might have contributed to the problem with that variable.

So to summarize: Two variables, one performance variable, parent report of executive functioning remains significant in the aggression equation. Stroop was not non-significant but on the borderline where we were worried about a power problem, and self-report dropped out.

And all of the zero order correlations, when we just did the correlations, all of those were statistically significant in that relationship.

I think that is about the meat of that study.

Q So your results for high media violence exposure, what was in general the summary of the results?

A In terms of just correlations, so not accounting for the other variables, the higher the media violence exposure, the worse they performed on these four measures of executive functioning.

When we accounted for the very large number of other variables, that relationship continued to exist for two of our measures of executive functioning. A third one was close, and that sort of throws a question mark up, and a fourth one dropped out.

Q Now, did you also make any findings that were reported in the aggressive behavior publication?

A Yes. The aggressive behavior publication, essentially what the purpose of that publication was was to look at the control and the DBD group and look at their levels of media violence exposure to see if the DBD group was reporting more media violence exposure during the past week and year using that same media violence exposure measure.

What we found was -- remember, we have that global measure that has the five media violence indexes. On that global measure, the adolescents with DBDs were reported, and their parents reported, more media violence exposure during the past year.

And then there actually were a few other indexes that we looked at that showed differences as well, but the most stable index and the one that we have used throughout our studies is the global media violence exposure index.

Q Did you correlate media violence in general or were there any independent correlates for video game violence versus television violence?

A Yes. Well, one of the purposes of that study, because we developed the media exposure measure, was we needed to explain to people what it was and how it related, and that is when we did that factor analysis stuff.

There was a question about whether video game violence exposure would be correlated with television violence exposure, and, you know, there were differing opinions about this. I mean, one potential thing could be that the more kids watch violent television, the less time they have for violent video games. So maybe they would be inversely related.

Another possibility was, well, maybe they would seek out both together because that interest would occur across television and video games. So that was an open question, and we wanted to see what we would find.

What we found was that television violence exposure and video game violence exposure as rated by either the self-report or parent report, those indexes that I talked about, they were correlated, and the correlation was about .35 to .4, you know, thereabouts.

So there was a relationship and a positive relationship. So the more television violence exposure that was reported, the more video game violence exposure that was reported.

We did in a post hoc analysis, meaning after we got our results of the study, we looked at whether --

You see, we found differences between groups in overall media violence exposure, but you could ask a question of: Well, is your difference between your DBD and your control group because of the television violence exposure or is it because of the video game violence exposure?

So we did a post hoc analysis. What that means is we didn't say going in we were going to do it. It wasn't until we got the results that we thought, oh, boy, people are going to ask this question, and we should do that analysis.

So what we did was we did what's called a partial correlation where you can look at the unique relationship between television violence exposure and membership in the DBD or control group and the unique part of the relationship between video game violence exposure and membership in the DBD or control group.

And what we found is that both were statistically significant. So there was a unique contribution of both television and video game violence exposure to that group membership, DBD versus control. So that is when we actually got into parsing that media exposure measure into video game and television in that Kronenberger article, which I sometimes refer to as the first article because it really was the first thing that we did even though publication-wise it might have come out about the same time as the others.

Q Dr. Kronenberger, you also described earlier phase two of

your studies with your IU research team.
A Correct.
Q Can you describe what the hypothesis that you set out to test in that phase was?
A Yes. I alluded to these -- our literature view and background knowledge had -- we had looked at media violence exposure and aggressive behavior and then aggressive behavior and brain functioning and looking at the parts of brain functioning that were associated with aggressive behavior. The parts of brain functioning that were associated with aggressive behavior, one group had been the prefrontal cortex that we had looked at in phase one.

The other group of structures were brain structures that had been hypothesized and it had been suggested that they were associated with emotional functioning and in particular what we call threat arousal stimuli. And these parts of the brain have been grouped under the name limbic system, l-i-m-b-i-c, system.

And the particular area that has been talked about quite a bit is the amygdala, a-m-y-g-d-a-l-a.

And the amygdala has been talked about as sort of a threat processing or as important in threat processing. And there is research that shows amygdala activation in situations that involve threat or when stimuli are presented that involve fear or distress or negative emotion. So we wanted to look at

those regions of the brain.

In order to do that, we developed a paradigm called emotional Stroop. So here we have Stroop again, but this one is different. In emotional Stroop, we have the colors, okay, and unlike counting Stroop where we had an easy way to do numbers, we had to go to colors at this point.

In emotional Stroop we had colors, and there were words that were printed in different colors. And in the activation part, or the part that we were looking at, the words were things that involved aggression or harm, things like hit, kill, murder, rape, so words that would connote that.

In the --

Now, remember, you always subtract out a control condition from the -- so they are still doing color naming, but the control condition was verbs that were not aggressive: run, jump, things like that. So in one part of the test they would have these aggressive words, and in the other part of the test, they would have these nonaggressive verbs. Their task was to say what color of ink the word was printed in.

And our expectation was that because those aggressive words would involve aggression, threat, that we would see activation in the limbic system and, again, in particular the amygdala.

Now, I should say this is phase two. So this is a new sample. Everything that I have been talking about up until now

was phase one. In phase two we recruited a whole new sample of adolescents. Essentially the DBD control, the recruitment procedure, et cetera, for all intents and purposes was the same, but we are doing emotional tasks. When we did the emotional Stroop in the scanner, what we found --

And, again, remember you start with comparing control and DBD. We found that the control group showed activation of the anterior cingulate cortex, and I believe also the dorsolateral prefrontal cortex. The DBD group showed increased activation of the amygdala.

Actually I have been talking about so many studies, if you don't mind, I am going to refer to this just to keep me on point, if that is all right.

Do I need to say the Matthews study?

Q Just for the record, you know, which?

A I am looking in my declaration at the back here where --

Q Are you referring --

A I am sorry, Kalnin.

Q The Kalnin 2005 paper?

A Yes.

Q It's attached to your declaration.

A And this is a paper presentation out of phase two, right.

So the first comparison, again, controls and DBDs. The DBDs show more activation in the amygdala which, again, is one of those limbic, l-i-m-b-i-c, system structures, and the

parahippocampal, p-a-r-a-h-i-p-p-o-c-a-m-p-a-l, gyrus, which is another structure that I believe is part of the limbic system. My interest was more in the amygdala.

Individuals with high media violence exposure when they did those tasks also showed activation of the parahippocampal gyrus and the amygdala, and individuals with low media violence exposure did not. They showed dorsolateral prefrontal cortex activation.

Q Now, even though --

A I do have to say, as I look at this, I don't see Kalnin reporting the ACC and DLPFC activation in the control group on this presentation. So I may be going from recollections of our discussions or I may be in error. I believe he has submitted his own declaration that people can refer to to see what he says.

Q Does this emotional Stroop task, in particular phase two test, are these results consistent with any of the phase one findings even though it is a different paradigm?

A In terms of the fact that the individuals with high media violence exposure showed a pattern of brain functioning -- a pattern of brain activation, I should say, in amygdala and parahippocampal gyrus regions that was similar, the high media violence exposure and the DBD groups showed similarities there.

Remember, that was a pattern of similarities that we had also seen in our phase one studies. I think it is

important to remember that this is sort of the -- one of the kind of down-the-line results that you look at. It is not like we just kind of took brains and said, wherever they are similar, that's what we are going to say.

Remember, this is built on a mountain of other research and theory that had us looking in certain candidate brain regions that were associated with certain things. And people were saying, you know, when you do this certain task, you get activation of this certain brain region, not just some, well, we are going to look generally within the brain and wherever they both show activation. So there is a progression from the literature to a theory to then actually looking at the brain functioning.

Q Now, you indicate that there has been support or literature for the fact that there is certain activation in an area when you look at that brain area and associate with a task. Is that exclusive of all other areas that could be activated?

A No. When I say "certain," what I mean is a long time ago, there was this discussion about whether, you know, different brain areas can have certain functions or whether the whole brain was involved in everything.

And what I am saying is that there is a certain task that you do in the scanner, and then you look at a certain brain area for activation, and you choose that brain area based on a theory. And then you have this theory, and then you look

at the results and you say whether they are consistent with your theory or whether they are not consistent with your theory.

But I guess what I am saying is we selected our brain areas to look at for activation based on, you know, other research, our background knowledge, speculation, you know, clinical experience, things like that.

Q Are you involved in any other current or ongoing research related to exposure to media violence and adolescent brain activity?

A We have started phase three which --

Phase three, the methodology is essentially we have adolescents come in and they are randomly assigned to play either a violent video game or a nonviolent exciting video game. Then within 10 minutes, we do a scan.

It's different from the other phases in that we have random assignment, but that has just gotten started. There are not results that you can speak to. I only bring it up to kind of show that there is a progression of this research.

Q And have we covered your opinions with respect to -- or your description of the research in phase one and phase two of the studies?
A I think so.
MS. LIU: That's all I have.
THE COURT: Cross. I guess I should ask, but I assume none of the other defendants want to ask questions.
MS. LIU: I'm sorry. May I approach?
THE COURT: That's fine.
MS. LIU: Your Honor, I'm sorry. I actually meant to request if I could admit Defendants' Exhibits 1, 2, and 3.
THE COURT: They're admitted.
MS. LIU: Thank you.
THE COURT: I assume none of the other defendants want to ask questions. I'm getting shakes no.
MR. DRYJANSKI: No.
THE COURT: Okay. Go ahead, Ms. Fallow.
MS. FALLOW: Good morning, your Honor.

CROSS EXAMINATION

BY MS. FALLOW:
Q Good morning, Dr. Kronenberger.
A Good morning.
Q Now, you've discussed the sort of three phases or the two main phases of your research that you conducted on media violence exposure and its effect on brain functioning; is that

correct?
A Correct.
Q And you're not relying on any findings from the third phase, the ongoing phase, in rendering your opinion here; is that right?
A Not in rendering my opinion here, that's correct.
Q Okay. And in phase one and two combined, three of those studies involved fMRI; is that correct?
A Yes. Three of the studies, yes, in my declaration.
Q And of those three studies, only one is published in a peer-reviewed journal; is that right?
A That's correct.
Q And the other two are power point slide presentations for a conference; is that right?
A That's correct.
Q And the other two studies you have do not involve fMRI; is that right?
A Other than those three, correct. Yes.
Q And for the fMRI studies, you are not the principal author of any of those fMRI studies; is that right?
A That's correct.
Q And do you also rely on Dr. Murray's research in giving your opinion in this case?
A I rely on Dr. Murray's research in the development -- it's one of the things that I used in the development of the theory

that -- yeah -- that media violence exposure affects certain types -- or that media violence exposure is related to, associated with certain types of brain functioning.

Q And other than the three fMRI -- and Dr. Murray's study involved fMRI; is that correct?

A Yes.

Q And other than your three studies and Dr. Murray's studies, there are no other studies involving media violence exposure and its effect on brain activity using fMRI; is that right?

A I believe that there are studies. As far as published studies, like actually out in the journals, I don't -- I can't think of any right now.

Q Now, you talked about the media exposure measure or MEM, as we've talked about, that you used in both phase one and phase two in order to assess each subject's relative level of exposure to media violence; is that right?

A Yes.

Q And this measure relied on self-reporting by both parents and children; is that right?

A On self-report by the adolescent and parent report of the adolescent media violence exposure, yes.

Q And based on those reports, you then assigned each subject a total media exposure measure score; is that right?

A Yes. They were summed.

Q And that score reflects a combined level of exposure to

both television violence and to video game violence; is that right?

A That's right.

Q And in the four studies that you did on the -- the three fMRI studies and the study in the Journal of Clinical Psychology, which measured executive functioning -- is that right?

A Correct.

Q And in all of those studies, you did not analyze the effect of violent video games specifically on the results you found there; is that right?

A That's correct.

Q Okay. Now, it is your opinion, is it not, that there is a correlation between teens with behavior problems and exposure to media violence; is that right?

A Right. That media violence exposure is related to -- shows a correlation with aggressive behavior, yes.

Q And that finding is purely correlational, and you can't draw any causal conclusions from that finding; isn't that right?

A Well, there have been studies done that did look at causal models. So, I think in the case of media violence exposure and aggressive behavior, there's a body of literature that, as it's been looked at, supports a causal model.

Q But when you report finding in your own research a

correlation between the DBD diagnosis and exposure to media violence, higher exposure to media violence, that is purely a correlational finding, right?

A That's correct. That's a correlation finding.

Q And, in fact, in that study -- the study on aggressive behavior; is that right?

A Yes.

Q And in that study you state that the study designed does not allow for causal conclusions to be drawn; is that right?

A Yes. It allows for one to test consistency with a model.

Q But it does not allow for causal conclusions to be drawn from this study; is that right?

A In the sense of a final conclusion, no.

Q And, in fact, it is possible and you've stated in this study that aggressive kids or teens with aggressive behavior might seek out media violence; is that right?

A Yes. And that would not preclude, by the way, that the media violence could affect them, as well.

Q Right. But it doesn't show the relationship either way; is that right?

A Correct.

Q Now, you've talked about the various phases of your research. I'd just like to start off with phase one and talking in particular about the Matthews study.

A Yes.

Q And that's the fMRI study that's attached as Exhibit 2 to your declaration; is that right?
A I don't have it as Exhibit 2. It's attached to my declaration.
Q I'm sorry. It's Exhibit 1.
THE COURT: It's the thing attached to his declaration.
BY THE WITNESS:
A It's the last thing in my declaration, yes.
BY MS. FALLOW:
Q I just wanted -- so you know where it is.
And you've said that this study involved the use of a counting Stroop task; is that right?
A Yes.
Q And when you talk about using a counting Stroop task to measure things like control or choice, you're talking about the ability to control whether you give the right answer in the Stroop task; is that right?
A We're talking about the ability to inhibit an easier answer or a faster or more immediate answer in favor of one that takes more thought and mental effort.
Q And you've testified that you can't use a Stroop task to make a diagnosis of ADHD or aggressive behavioral disorder; is that right?
A That's correct.

Q Yes?
A That's correct.
Q And when you used the counting Stroop task in the Matthews study, you were not measuring control over aggressive behavior, were you?
A No.
Q And similarly you've mentioned talking about certain areas of the brain being involved in inhibition, but when you talk about inhibition in the context of a Stroop task, you're talking about the ability to inhibit the wrong answer; is that right?
A Not just the wrong answer, but the more impulsive answer.
Q The more impulsive is to actually read the word rather than state the number of -- or sorry -- read the number rather than state the number of digits; is that right?
A Yes. The number of numerals.
Q Now, in the Matthews study, this found that media violence exposure had no effect on the subject's performance on the Stroop task; isn't that right?
A There was no difference between the groups on the Stroop task, yes, in the Matthews study.
Q So, those with high media violence performed the same as those with low media violence exposure on the Stroop task; is that right?
A Yeah. I mean, to statistically significant levels, that's

correct.
Q And then my understanding of this, and I think you've talked about it, is essentially you put the subjects in the fMRI, and they perform the Stroop counting task while they were in the fMRI; is that right?
A Yes.
Q And then this article, the Matthews article, has some pictures of brain images; is that right?
A Yes.
Q And in describing what you found in terms of what is shown on the fMRI images, you're relying on the statements in Dr. Kalnin's declaration; isn't that right?
A Well, I'm looking at the statements in the Matthews article. Dr. Kalnin is a member of the team, who is a neuroradiologist. So, his statements -- he actually looks at parts of the brain for clinical purposes, and so he's a leader on the team for that. And then, of course, I was also present in the team meetings where we discussed those regions. So, I would say that all of those enter into my overall knowledge.
Q You would defer to Dr. Kalnin in terms of looking at these images and pointing out specific patterns of activity; is that right?
A Based on the images, yes.
Q Now, in this study you found that the activation -- you've explained you found that the activation pattern of control

adolescents with high media violence exposure resembled that of the DBD group in terms of the fMRI images in several ways; is that right?

A Correct.

Q But the patterns of activation between those two groups were not exactly the same, right?

A No, they were not identical.

Q And, in fact, on Page 289 of the Matthews article, table one, that shows in terms of clusters and location the respective activity for each of the groups; is that correct?

A Yes.

Q And, in fact, for, for instance, the DBD group and the controls with high media violence scores, there are some differences; is that right?

A Yes.

Q Now, on Page 10 of your declaration, you have said that the Matthews study found reduced activity in certain --

THE COURT: Back up a second.

MS. FALLOW: I'm sorry.

THE COURT: What was the page you just cited from the Matthews?

MS. FALLOW: That's Page 289.

THE COURT: Thank you. Go ahead. Sorry for interrupting.

BY MS. FALLOW:

Q If you would look at Page 10 of your declaration, paragraph 30. Sorry. Paragraph 33. You talk about finding reduced activity in certain regions of the frontal lobes for the DBD group and also for the control group of high media violence functioning; is that right?
A Yes.
Q And by that you mean you found a reduction for these two groups in some, but not all of the regions of the dorsolateral prefrontal cortex; is that right?
A Yes.
Q And is it also possible that for the reduced activity you did observe that that could signal expertise, in that people who have, for instance, played a lot of video games may not be as challenged by a task?
A That would be unlikely. Possible in the sense that anything is possible, I guess, but very unlikely.
Q But you wouldn't rule out that your study findings of a reduced activity could actually show expertise in that group?
A For this type of task, for the Stroop task, I would say that would be very unlikely. You'd have to assume that somehow that expertise had generalized to a Stroop task and that the DBD group, which had more similarities with the high media violence exposure group, were more expert, and yet we know that those kids showed very poor control in the environment.
Q Are you aware of literature showing that subjects who play

video games actually show reduction in certain areas of the frontal lobes as a result of their expertise playing those video games?

A Reduction in certain -- using -- reduction in certain areas of the frontal lobes? I'm not sure what --

Q Yes. Are you aware of that literature?

A You mean reduced size or --

Q No. Reduction in activity in the frontal lobes because the task is actually less challenging because they're experts.

A I'm not aware of any neuroimaging studies that have looked at that.

Q And there's nothing in this study that would show that control subjects with high media violence exposure -- for instance, they could be worse readers or do worse in school, and nothing in this study shows that that might be the reason for doing more -- or for showing a particular pattern of brain activity; is that right?

A Again, you could speculate that, but the data would argue -- some data would argue against it. Number one, not only were the control and DBD groups matched on IQ, but also there was no difference between the high and low media violence exposure groups in IQ is my recollection, and you would somehow have to believe that you had smart bad readers, which is theoretically possible, but there's a correlation between reading ability and IQ.

Q Well, you're saying that everybody -- but there was no difference in the performance on the actual Stroop task according to groups divided up as according to media violence, high media violence exposure; is that right?
A There was -- that's correct. In the Matthews study.
Q Right.
A Not in the Kronenberger study.
Q So, just based on the observations of the brain pattern activity that you observed, because there was actually no difference in performance, you can't conclude, can you, that the control group of high media violence was any worse off. It just showed a different pattern of brain activity; isn't that right?
A I think you also have to take into account the methodology here, which was that they had to perform above a certain level to even be included in the study. So, very poor performers were dropped out. In other words, anyone who performed below a certain level did not enter into the study.
Q But that would apply -- you dropped out anyone who performed beneath a certain level across control and DBD; is that right?
A That's correct.
Q And across high media violence and low media violence exposure; is that right?
A That's correct.

Q So, in terms of determining what conclusion you can draw from this observation of brain pattern activity for the control adolescents with the high media violence, it seems to me that your approach was that you took a group that was diagnosed with real behavioral problems or problems with self-control, and you gave them a task of executive functioning -- you've testified to this -- and then you compared their fMRI images with those of the control group; is that right?

A It's right, but it's not complete. We also used background research about what those areas of the brain are associated with, others' research, literature review, understanding. So, it wasn't just, you know, we compared the two groups. There was a theory based on that progression from media violence to aggression to brain functioning. We were trying to look at certain brain areas.

Q But in terms of identifying in this study what areas that you found interesting in terms of activation, you looked at what the differences were between the DBD group and the control group; isn't that right?

A No. The candidate areas, the regions of interest we identified a priori. The anterior cingulate cortex and the dorsolateral prefrontal cortex.

Q I understand that, but then when you looked at those regions, you actually found that the DBD group had greater activation in some of the areas of the dorsolateral prefrontal

cortex, the middle frontal gyrus, whereas the control group had more activation in the inferior frontal gyrus. So, actually out of two of your three regions of interest, there was a difference between -- and there was actually a reduction of activity for the control group in one of the areas of the dorsolateral prefrontal cortex; isn't that right?

A As I stated, in that middle frontal cortex result, because we found increased activation in the DBD group and in the individuals with high media violence exposure, that was different than what we had expected. Sorry. Middle frontal gyrus. And the DLPFC consisted of both regions. A priori we did not expect differences in those regions, and we used the comparison group to address those. However, a priori we did expect that those were regions of importance, and I'd like to point out that the anterior cingulate cortext, the ACC, was a region that was looked at, as well.

Q Now, in your declaration you said that -- you concluded that increased media violence exposure was linked with reduced levels of brain functions associated with self-control and concentration, and in terms of determining what areas were associated with self-control and concentration, you used the DBD group as the measure; isn't that right?

A No. A priori we looked at the brain regions that research -- as I described earlier in my declaration -- that research had tied to aggressive behavior, and those also are

regions, namely, the ACC and the DLPFC, that are related to poorer self-control -- less activation is related to poorer self-control. The comparison of controls in DBDs is then a layer that is on top of that. It is not the sole --

Q That comparison, though, did play a role in your thinking in this research?

A Yes.

Q And, Dr. Kronenberger, were you deposed in this case?

A Yes.

Q And were you asked in your deposition, "So, for the control subjects, the high versus low, are you saying that the fact that they had their pattern of activation here shows reduced activity in the areas responsible for self-control and concentration?"

A I'm sorry. Can you read that again?

Q Would it be helpful if I show you this?

THE COURT: Show him and then read it slower because I want to absorb it.

MS. FALLOW: Okay.

BY MS. FALLOW:

Q It's starting on Page 239, and I'll give you a line number. Do you have the page?

THE COURT: He's got the page.

BY THE WITNESS:

A Yes. Sorry.

BY MS. FALLOW:
Q It's starting on line 16, and it says, "So, for the control subjects, the high versus low, are you saying that the fact that they had their pattern of activation here shows reduced activity in the areas responsible for self-control and concentration?"
A Yes.
Q And then in your answer, you say, "I'm saying that there are going to be multiple areas that are responsible for self-control and concentration in different ways and with different connections. The best way to understand which ones are responsible for self-control and concentration is to compare a group known to be better at control with a group known to be worse at control. And so, you look at the control compared to DBD as a way of figuring out which regions those are in that paradigm, and then you go and make the comparison of high versus low media violence exposure and see the pattern, whether it fits again the group known to have poorer control or the group known to have better control in that paradigm." Is that right?
A Yes.
Q Now, in this Matthews study the control group with high media violence that you observed a similar pattern of activation, they had actually no real world problems with aggression or self-control by your own assessment; isn't that

right?
A That's correct.
Q And with respect to the findings in all of your studies with respect to the high media violence control group, your studies do not predict future risk for aggressive behavior for these teens; is that right?
A That's not something that we studied, that's correct.
Q All right. Now I'd like to turn to Exhibit 2, and this is your article in the Journal of Clinical Psychology, right?
A Yes.
Q And this study is a -- the title of it is "Media Violence Exposure and Executive Functioning in Aggressive and Control Adolescents," is that right?
A Yes.
Q And this study did not involve fMRI, correct?
A That's correct.
Q And so, any conclusions that you made about actual brain activity, you're not looking at actual images of brain activity in this study; is that right?
A Not in this study, but by virtue of the test being neurocognitive tests, two of them, they are things that are related -- that have been shown to be related to brain activity.
Q Meaning you draw an inference that certain portions of the brain will be activated during these tests?

A Correct. Meaning that -- yeah, that there's neuropsychological writing on that.
Q And you said that you used neurocognitive testing in this study; is that right?
A For two of the measures, yes.
Q And by that you're referring to the continuous performance test and the Stroop color-word task?
A Correct.
Q Now, neither of these studies, these tests, measured aggression; is that right?
A That's correct.
Q And you've stated that you found a simple correlation between exposure to media violence and the four measures that you use in this article; is that right?
A Correct.
Q But you've also stated that when you did the regression analysis and controlled for all the other possible variables that there was no relationship between media violence exposure and performance on the Stroop color-word task; is that right?
A That's right, but it's not complete. It was on the fringe of significance, but it was nonsignificant, which raises concern about a statistical artifact.
THE COURT: About a statistical --
THE WITNESS: A statistical artifact.
THE COURT: Isn't that what you were describing

before?

THE WITNESS: Yeah, that as you enter more variables, your power is reduced, and as a researcher, you begin to worry that, in fact, there may be a relationship between variables that because of the way statistics work you won't detect because you've put too many variables into your regression.

THE COURT: I thought that's what you were referring to. I just wanted to be sure.

BY MS. FALLOW:

Q And when you did the regression analysis, you controlled for things like IQ, age, race --

A Yeah, race.

Q -- media violence exposure; is that right?

A We didn't control for media -- total media exposure, yes.

Q Okay. And so, when you talk about the simple correlations you found, for those correlations you couldn't rule out that maybe age or race or gender or IQ would have just as great of a relationship, if not more of a relationship with the performance on the Stroop color-word task; is that right?

A That's really not what the statistic does. It doesn't look at -- when you look at the zero order of correlation and you do the regression, you're actually pulling out the unique relationships of those other variables with the two variables that you had been correlating. It's not that you're necessarily testing each of those other variables because your

equation might look different if your intent was to test those other variables.

Q Accepting the results of this study, the results that you found were purely correlational, again, right? And -- is that right?

A They were cross-sectional in terms of research. Correlational in the sense that nothing was manipulated.

Q And this study, you cannot draw any causal conclusions from the study results; is that correct?

A You can say it's consistent with a model, but you cannot go to a full causal conclusion based on it, yes.

Q And in the article, in fact, you did say that, "First, as this was a cross-sectional correlational study, causal conclusions cannot be drawn from study results." That's on Page 735; is that correct?

A In the sense of a final conclusion, that's correct.

Q And you also say, "Hence, the finding of a relationship between media violence exposure and executive functioning could indicate that adolescents who have poorer executive functioning seek out more media violence, the adolescents who have more media violence exposure have poorer executive functioning, or that some other third" -- sorry -- "or that some third variable is responsible for the relationship;" is that right?

A Yes, although I go on to explain that it's very unlikely that the final explanation is the case because we were so

conservative in our analyses.
Q But the study still leaves open the possibility that those adolescents with poor executive functioning seek out violent media; is that right?
A Yes.
Q Now, I would also like to turn to the other study you talked about in the context of phase one of your research, the study by Wang, et al., and this is the study -- I don't think we have it up here for you. I don't think you have it up here.
A Okay. Sorry.
Q And this is the study where you did the media violence exposure measure, and you did the DBD classification, and then you showed the subjects video clips from a video game of two different kinds video games; is that correct?
A That's correct.
Q And you used a James Bond game; is that right?
A Yes. I don't remember which one, but I believe it was a James Bond game. I think that's what it says in the presentation.
Q And you considered that a violent game in the context of this study?
A The way that we define media violence, yes.
Q And then you used some unidentified car driving game; is that right?
A Yes. I don't recall the name of it.

Q And the Wang study is not published, right?
A No, that was a presentation.
Q In the Wang study you didn't measure executive functioning; is that right?
A We measured activation in brain areas that are associated with executive functioning. We did not measure executive functioning in the sense of a neurocognitive test.
Q And you said that -- you referred to this is simulated play of the video games, but the subjects were actually told that they were not in control of these clips, the filmed clips of the video game; is that correct?
A Yes. They knew that going in.
Q And you said that you observed similarities again between the DBD group on one hand and the control -- I'm sorry -- the high media violence exposure group on the other hand; is that correct?
A Yes.
Q But these patterns again are not exactly the same; is that right?
A Correct. There are similarities.
Q And because you didn't use a test about executive functioning, you can't draw any conclusions about what the pattern of brain activity for those with high media violence exposure shows about executive functioning; is that correct?
A I would agree that we're less confident about what exactly

that task shows other than violent versus nonviolent video game playing because there's not the same body of background research that you would find for the Stroop.

Q And your conclusions about this study have to do with the perceived similarities between the DBD group and the high media violence exposure group; is that right?

A Yes, and the fact that we selected the regions of interest based on the criteria that I discussed before.

Q And, in fact, you've said that -- you just earlier testified that you couldn't use the task of concentrating on a video game to get a diagnosis on impaired executive functioning; isn't that right?

A That's correct.

Q And, again, in this study the control subjects with high media violence exposure did not exhibit any real world problems with behavior; is that right?

A That's correct.

Q And they hadn't seen a mental health professional in the past three years; is that right?

A That's correct.

Q Now, in phase two of your study, it seems to me that this primarily consists of, at least for purposes of your testimony, the Kalnin study; is that right?

A Yes. To my knowledge, that's the only thing that we've presented on it.

Q And that's another fMRI study; is that right?
A Yes.
Q And this study has not been published; is that correct?
A Correct. But I should clarify, most people would consider it not published. I believe an abstract of it has been published, but this is done -- I just want to be technically precise. This is done for presentations, and it's not considered a publication.
Q It was an abstract published in a peer-reviewed journal as a peer-reviewed piece?
A I don't know -- in all honesty, you're talking about a neuroradiology journal. As a matter of fact, I can't even remember the journal. But when -- I just want to be technically correct. When they do these presentations, they publish an abstract in the journal so that people can see what presentations have been done. I don't know.
Now, I can tell you psychology presentations are peer-reviewed very frequently. But I apologize. That's just what I -- I just want to be technically correct.
Q You don't know whether it's been published in a peer-reviewed journal; is that correct?
THE COURT: I think what he's saying --
THE WITNESS: I think that that's accurate. I just don't want to get this wrong.
THE COURT: I think what he's saying is that the study

itself hasn't been published. An abstract has been published, and he's not sure whether that one was peer-reviewed because it's not a journal that he normally picks up and reads.

THE WITNESS: That's exactly.

BY MS. FALLOW:

Q And you described using in this study an emotional Stroop task; is that correct?

A Yes.

Q And what you did here is you had the words of different colors, but you actually had them -- you assigned some that you said were violent words; is that correct?

A Violent aggressive, yes.

Q And then some words were nonviolent; is that right?

A Correct.

Q And examples of violent words are words like hit or kill; is that correct?

A Correct.

Q And you say on Page 11 of your declaration -- it's paragraph 38, first bullet point, "Within the DBD group adolescents with high media violence exposure were slower to respond to violent words, compared to nonviolent words, when asked to ignore the word meaning and respond only to the color of the ink in which the word was printed. Therefore, they were more affected by the violent words than the nonviolent words, despite being told to ignore word meaning;" is that right?

A Yes.
Q But isn't it true that this study actually shows that the DBD subjects with low media violence were, in fact, slower or had a greater Stroop interference effect than the DBD group with high media violence; isn't that right?
A Well, and I should probably clarify that because this is something that we discussed in my deposition. First of all, you can't just look at the difference between two mean values to tell if there's a difference between groups. The variability is also involved in that test. We don't have the variability there.

My understanding of the analyis that Dr. Kalnin did was based on a relatively -- a discussion with him and also based on what was stated there in that presentation. That's what I understand. I do not remember being present at the data analyses. So, it's hard for me to say exactly what was happening there. What I can tell you is it is true that you cannot tell from that presentation about the variability, which you would need to show if there was a difference or not. So, you're left with his statement.
Q But you state that the DBD group with high media violence exposure was actually slower to respond to the violent words and the nonviolent words and thus showing that they were more affected by the violent words. If you look at Page 13 of the Kalnin presentation, which shows various charts with behavior

results, on the left -- if you could just turn to that. On the left, the two graphs on the left talk about reaction time; is that correct?

A That's correct.

Q And the top one refers to the reaction time to violent words, and the bottom one refers to reaction time to nonviolent words; is that right?

A That's right.

Q And at the bottom it lists the groups. The farthest to the right is the DBD M1. That refers to the high media violence; is that right?

A Correct.

Q And the DBD M0 was the low media violence group within the DBD group; is that right?

A Correct.

Q And just estimating, it looks like the DBD high media violence essentially was slower to respond to violent words, as opposed to nonviolent words, by about ten milliseconds; is that right?

A Again, that's how it looks. I should clarify that these are not analyses that I laid my eyes on from the standpoint of the data. I may have my interpretation of this wrong. As I look at it, I see what you're saying. I may have my interpretation of it wrong.

What I am saying, also, though, is that you can't say

that the differenc between -- if you look at the top left, you can't say that the difference between DBD M1 in the top left and DBD M0, still in the top left, is, you know, more or less than the difference between DBD M1 and DBD M0 in the lower left because you don't have the variability.

And my understanding, again, from discussions with Dr. Kalnin, was that he had found a difference in that upper left. That's what I was trying to characterize there. I understand there may be an error, but I can only tell you how I see it now.

Q It's my understanding that the Stroop interference effect is you actually look at the person, and you say how long did they take to respond to the violent words, and then you subtracted from that how long they took to respond to the nonviolent words; is that correct?

A Well, you do it on a group basis.

Q Okay. Fine. Within a group. So, the real comparison should be the reaction time of the DBD with high media violence to the violent words with the reaction time for the same group to the nonviolent words. That's the Stroop interference effect as you describe it in paragraph 38 of your declaration; is that right?

A Well, and that's where I'm saying. That had been my understanding and, again, from discussions with Dr. Kalnin, but as I look back at the information, what I'm saying is you can

compare the DBD with high media violence and the DBD with low media violence on the violent words, and if you find a significant difference between those two groups on the violent words, but not on the nonviolent words, that is an interference effect. But it is true that you don't have the data to say that. I'm just trying to explain what my understanding was. I think, unfortunately, that is something that I cannot give you a firm answer to here because I --

Q Based on just what we have here, it is possible that the DBD group with low media violence actually were slower to respond to the violent words, meaning they were more affected by the violent words than the high media violence DBD group; is that right?

A That's possible, but I would say that's very unlikely, but that's possible.

THE COURT: Find a convenient place to pause. We're at 12:30. Is this a good place?

MS. FALLOW: Yes.

THE COURT: Okay. I have a status hearing that should take no more than a couple minutes at 1:30, so we'll resume right after that. And then tomorrow rather than 10:00, I think we'll be able to start at 9:45.

MS. FALLOW: Thank you, your Honor.

(Whereupon, the within trial was recessed to 1:30 o'clock p.m. of the same day.)

IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

ENTERTAINMENT SOFTWARE ASSOCIATION, et al.,	)	
Plaintiffs,	)	No. 05 C 4265
v.	)	Chicago, Illinois
	)	November 14, 2005
ROD BLAGOJEVICH, et al.,	)	1:45 p.m.
Defendants.	)	

TRANSCRIPT OF PROCEEDINGS
BEFORE THE HONORABLE MATTHEW F. KENNELLY

APPEARANCES:

For the Plaintiffs: JENNER & BLOCK, LLC
One IBM Plaza
330 North Wabash Avenue
40th Floor
Chicago, IL 60611, by
MS. KATHERINE A. FALLOW
MS. KATHLEEN R. HARTNETT
MR. DAVID P. SANDERS

JENNER & BLOCK, LLP
601 13th Street
1200 South
Washington, D.C. 20005, by
MR. PAUL M. SMITH

For the Defendants: FLETCHER, TOPOL, O'BRIEN & KASPER, P.C.
222 North LaSalle Street
Suite 300
Chicago, IL 60601, by
MR. MICHAEL J. KASPER

HOGAN MARREN, LTD.
180 North Wacker Drive
Suite 600
Chicago, IL 60606, by
MR. PATRICK E. DEADY
MS. LAURA C. LIU

OFFICE OF THE ILLINOIS ATTORNEY GENERAL
100 West Randolph Street
13th Floor
Chicago, IL 60601, by
MR. ANDREW L. DRYJANSKI
MS. ELLECIA L. PARSELL-BURKE

COOK COUNTY STATE'S ATTORNEY
500 Richard J. Daley Center
Chicago, IL 60602, by
MR. STEPHEN L. GARCIA

COURT REPORTER: LAURA M. BRENNAN
219 South Dearborn Street, Room 2102
Chicago, IL 60604
(312) 427-4393

(The following proceedings were had in open court:)

THE COURT: All right, Dr. Kronenberger, do you understand you are still under oath?

THE WITNESS: Yes.

THE COURT: You can proceed.

MS. FALLOW: Thank you, your Honor.

WILLIAM G. KRONENBERGER, DEFENDANTS' WITNESS,

PREVIOUSLY SWORN

CONTINUED CROSS EXAMINATION

BY MS. FALLOW:

Q Dr. Kronenberger, before the lunch break, we were talking about the Kalnin study that used the emotional Stroop test, is that correct?

A Yes.

Q In that study you again found similarities between the brain pattern activity of the DBD group and the control group with high media violence, is that correct?

A That is correct.

Q But, again, you didn't find that these patterns were exactly the same, is that correct?

A That is correct.

Q In fact, in this study the control group with high media violence showed activation only in the amygdala, not in the parahippocampal gyrus, is that correct?

A That is correct.

Q But the DBD showed activation in both areas, is that right?
A In the parahippocampal gyrus as well as the amygdala.
Q Thank you.

The similarities you observed could have quite different causes in those two populations, isn't that correct?
A That is possible. I think that that is more of a stretch given that we knew what our -- we hypothesized that our task was a certain type of emotion and we were basing it on prior research about what the function of the amygdala is.
Q On page 13 of your declaration, or you had mentioned in your testimony that the phase -- that phase two of the Kalnin study replicated the findings in phase one, is that correct?
A That is correct.
Q And you believe that that replication is shown in the slide presentation, Dr. Kalnin's slide presentation, is that right?
A I believe it was shown in his description of his results. Subsequent to -- I believe it was subsequent to my --

At any rate, at some point he and I had a communication where he corrected his reading of one of the slides, and I --

My understanding was that he still found that effect, but he didn't see it on the slide that he had. I forget which region of the brain that involved.
Q And you testified earlier that you weren't sure what parts of the DLPFC or other parts of the brain were activated for the

low media violence group and the control group, is that right?
A I am not quite sure what you are asking.
Q You were talking about replicating the findings in phase one.
In phase one you found activation in certain areas of the frontal lobes, is that right?
A That is correct, yes.
The dorsolateral prefrontal cortex was involved in both studies, but in the Kalnin study it has not been separated out in the presentation.
Q You also mentioned earlier that you reviewed Dr. Murray's fMRI study, is that right?
A Yes, in the course of my research.
Q Is your opinion that the research is consistent with the legislative findings in this case based on Dr. Murray's research?
A That Dr. Murray's research is consistent with the findings?
Q Yes. Does that form a part or basis for your opinion?
A Well, I don't know if you define it that way. It was part of the body of research that I looked at early on in identifying candidate brain regions to be regions of interest for my later research.
So, I mean, in a way, I guess there is a connection but, again, really my opinions are predominantly based on my research.

Q Would it be your assertion that Dr. Murray's study supports the conclusion that there is a reduced activity in the frontal lobes of the brain of minors that view violent media?
A Oh, I don't know that you could say that.
His research, as far as I know, is based on brain activity during the actual viewing of violent media. My understanding and my research has been based on what happens to individuals who are exposed to violent media after the violent media exposure.
Q Dr. Murray's study didn't involve video games at all, is that correct?
A I can't speak to him on that, but the things that I reviewed were videotaped scenes is my understanding.
Q These were films like Rocky 4, is that right?
A That is what I understand, yes.
Q Then a nature film and an educational film?
THE COURT: Which one is Rocky 4? Is that the one with the Russian guy?
MS. FALLOW: I can't remember. I was thinking about that.
THE WITNESS: Can I answer?
THE COURT: Do you remember?
THE WITNESS: I was at a presentation where it was the Russian guy.
THE COURT: That's okay.

THE WITNESS: I am sorry.
THE COURT: -- Lundgren playing a Russian?
THE WITNESS: Yes, exactly.
THE COURT: Then there is an ersatz Gorbachev right down to the birthmark, I think, that stomps out of the stands at the end when the Russian loses.
THE WITNESS: I didn't see that.
THE COURT: I watch a lot of cable.
Go ahead. Sorry.
BY MS. FALLOW:
Q Dr. Kronenberger, all three phases of your research that you have described were funded entirely by an organization known as the Center for Successful Parenting, is that right?
A For all intents and purposes, yes.
Q Your understanding of the Center for Successful Parenting's mission is that it's designed to protect children from media violence in all formats, is that correct?
A That may be correct. I think you showed me some things at my deposition that I, frankly, had not researched or seen before, and my recollection is it was something like that.
Q And you and your colleagues have received over $1.3 million in funding from the Center for Successful Parenting for the three phases of your research, is that correct?
A I would have to add it up. Can I look at my CV?
Q Sure.

A You are probably in the ball park. I don't know.
Q I don't have it up here with me.
A Is it okay to say you're in the ball park?
Q If you think that is --
A You're in the ball park.
Q -- roughly in the ball park?
A Yes.
Q The funding is reflected in your CV that you have submitted to this Court, is that right?
A That's correct.

MS. FALLOW: No further questions.

THE COURT: Redirect?

MS. LIU: No, your Honor.

THE COURT: You are excused. Actually, no. I had a question.

When you were talking about the control subjects with high media violence exposure and those with low media violence exposure, my recollection of your description of how you made the dividing line, it was basically you took the whole group and you kind of -- everybody who was above 50 percent and everybody who was below 50 percent, is that right?

THE WITNESS: Roughly speaking, yes.

What we did was we took the entire sample, which included controls and DBDs together, and then we made the dividing. So within any group -- because on average, it will

tend to be the case that controls have a little lower media violence exposure. You might end up, I think in the study, for example, with eight controls with high media violence exposure and 11 controls with low media violence exposure, and those numbers are flipped for the DBDs.

THE COURT: My question was this: What does high mean? In other words, can you put some numbers on it in terms of -- I don't know.

I know this is details on the terms of your study, but can you put some numbers on it in terms of how much exposure was high for the people in that category?

THE WITNESS: You know, I may be able to provide some information out of one of my articles. Is it okay to refer to that?

THE COURT: Yes.

THE WITNESS: So this is the Defendants' Exhibit 3 aggressive behavior article where we actually provided values.

THE COURT: It looks like --

THE WITNESS: In Table 1.

THE COURT: Table 1.

THE WITNESS: In Table 1 you can see --

Probably the easiest things to evaluate is the past week because that is actual minutes of violent television or video that they had exposure to.

THE COURT: So it's by minutes.

THE WITNESS: Yes. There is a little more that goes into the calculation. So you can't actually say -- for example, in the upper left, you can't actually say that kids with disruptive behavior disorder were exposed to 612 minutes in the past week on violent television.

Do you see where I am up there?

THE COURT: I am looking at exactly at it.

THE WITNESS: What happens is there are two measures of violence. This is where I talked about it's a pretty involved measure. You get a measure of injury, which is a depiction of someone actually being harmed. It is double-weighted in terms of minutes if the injury is considered graphic, which is defined as blood showing or loss of a body part.

And we do this in an interview. So if they say, yes, there was graphic injury, you say, "what happened?" so that we make sure that it really happened. So it's a little hard to turn it exactly into minutes.

THE COURT: I get it.

THE WITNESS: But roughly speaking, you are talking on the order of hours in the past week, roughly speaking. There may be --

THE COURT: Let me --

THE WITNESS: Actually in the text, actually there is going to be some stuff --

THE COURT: Some discussion.

THE WITNESS: Actually on page 208, without reading it all to you, but under media violence exposure in diagnostic group, that actually goes through the number of hours in the past year as well.

THE COURT: Here is my question about that. When you are talking about the number of minutes of violent media exposure, let's say you have an hour long show which was, as we all know, isn't an hour long show; its probably 40-some-odd minutes. And let's say during that entire show one person gets -- is the object of violence in one of the manners that you described, in other words, blood or loss of a body part or something like that.

Do you count the whole hour or do you just count the part, or how does it work?

THE WITNESS: We actually handle that in the interview. It's relatively rare that a teen-ager will tell us, "well, I watched a show for an hour and it was fine, and then at the end, you know, this person, you know, whatever, he lost a limb."

More often than not what will happen is they will say, "well, there was this, that and the other thing," and then we will say, "well, here's our definition of injury, you know, people being injured. When you watched this show, you know, for this hour, so to speak, was that something that you feel

was regularly present in the theme of the show?" And then they answer that.

Then we actually probe it. We have a t.v. guide here. Actually when we train our technicians, we actually have a video of a person that we show them going through this. It's actually a fake, it's a confederate, and then we sit there with them and say, "okay, what would you say here?"

So we try to standardize how they would ask the questions.

The past week with the minutes, you know, to some extent there are times, frankly, that you are making estimates, obviously.

THE COURT: Of course, right.

THE WITNESS: Now, the past year what we do is -- and I apologize. I don't know if you want the gory details, but we essentially say, "How many hours of television do you watch a week?" We don't want to bias them. We don't want to say, "How many hours of violent television do you watch a week?"

So we just start with, "How many hours of television do you watch a week?" We have, like, graphs to see how much of a day this would be and things like that. They tell us the number.

Then we say, "we are going to go on a four-point scale. 1 is it's not present at all. 2 is it's sometimes present but you really don't notice it. 3 is it's regularly

present, and you know it's present as a theme. Then 4 is you feel like it's almost constant or you couldn't do it without it.

Then we go through injury, which is defined, as I said before, and then graphic injury, which is defined. So they do it on a 1 to 4 scale, and then we have a formula where we multiply.

Does that make sense?

THE COURT: I get it.

THE WITNESS: We feel like that's more valid.

THE COURT: I get it. In other words, a situation where a person says they saw a show which may have included, you know, intermittent violence or one act of violence, it doesn't get the same -- it doesn't translate into the same number of minutes for purposes of your thing as one where it's regularly involved as a matter of routine, or am I missing something?

THE WITNESS: It could.

THE COURT: It could.

THE WITNESS: There really is a certain judgment in the past week.

THE COURT: Sure.

THE WITNESS: I mean, our technicians are fairly sophisticated. They have a t.v. guide. They have the themes of the show and things like that. They are told not to

influence the rating, but they actually do --

I mean, there is a judgment. Ultimately they have to say it was violent media or it was not in the past week, and that is a weakness of the past week, or it's -- not a week, but something you have to consider.

The past year, because they can make those kinds of gradation estimates, you get a little bit better. Each has its strength and weakness, which is why we like the fact that they were correlated with each other, so we could add them together, the idea being that what you end up with at the end, while there is a, like many measures in psychology, a certain amount of error variance, that you have essentially strengthened your core measure.

THE COURT: You just segued into the one other question I had. When you said that the five -- I think it was, you said, five out of the six correlated with each other, what I take it you meant by that is that the answers on those five were more or less consistent with each other and then there was this one that wasn't.

THE WITNESS: That is exactly right, and it was the parent television that did not go with the rest, and that was in phase one. We really developed a measure in phase one. I don't know what the results look like in phase two, if we had done the same thing.

THE COURT: Thanks.

Does anyone have any follow-up questions based on the questions that I asked?

MS. FALLOW: No, your Honor.

THE COURT: Thanks. You are excused. Thank you very much.

THE WITNESS: Thank you.

(Witness excused.)

THE COURT: The next witness is?

MR. SMITH: Dmitri Williams.

(Witness sworn.)

THE COURT: You can proceed.

DMITRI WILLIAMS, PLAINTIFFS' WITNESS, DULY SWORN

DIRECT EXAMINATION

BY MR. SMITH:

Q Would you state your full name for the record?

A It's Dmitri Caspian Scott Williams.

THE REPORTER: Please spell your name.

THE COURT: Spell Dmitri.

THE WITNESS: D-m-i-t-r-i. Caspian, C-a-s-p-i-a-n; Scott with two "t's." Williams the standard way.

BY MR. SMITH:

Q Where are you presently employed?

A At the University of Illinois, at Urbana Champaign.

Q What position do you hold?

A Assistant professor.

Q And what department?
A Speech communication.
Q Can you tell me what is your focus of work in the area of speech communications?
A My specific areas of focus are in media and new technologies.
Q Media and new technologies?
A Correct.
Q Now, let me show you what has been marked as Plaintiffs' Exhibit 1.
THE COURT: This is the CV?
MR. SMITH: Yes.
THE COURT: Unless it's changed, I will just go with the one I have got.
BY MR. SMITH:
Q Is that your CV, professor?
A It is. I have one paper since I submitted it, but otherwise it's right on.
Q What courses do you teach at the University of Illinois?
A I teach two primary courses. One is titled Virtual Communities, and the second is titled Video Games: Content, Industry and Policy.
Q Can you tell me briefly what your educational background is?
A I have a bachelor's from the University of Southern

California, major in English literature and creative writing; a minor in business administration; a master's from the same university in communication management; and my PhD in communication studies from the University of Michigan.

Q Your PhD was in communication studies. Can you tell us what that is?

A Communication studies is a relatively broad term, but we are interested in messages between individuals and among groups often, but not always, through the mass media.

Q And in your training in communication studies, did you study both quantitative and qualitative methods?

A I did. I had advisors who specialized in both.

Q How does your field of study, communication studies, relate to the field of study called social psychology?

A There is certainly an overlap. I would consider myself a social psychologist. To the extent that I specialize in media, I view social psychology, both theories and methods. Not everyone in the communication field would identify themself that way, but I would.

Q Do you have training in the area of social psychology?

A I do.

Q Was any of that training specific to the media and how social psychologists would look at the media?

A Yes. Nearly all of at Michigan, yes.

Q Tell us the title of your PhD dissertation.

A It's called "Trouble in River City, The social Life of Video Games."
Q Can you just briefly describe the subject matter that you dealt with in your dissertation?
A It's difficult to do entirely briefly because it has many different component parts, but it's --
Q Take as much time as you need then.
THE COURT: Well, wait a second.
MR. SMITH: All right, I should never say that to a witness. I'm sorry, your Honor.
BY THE WITNESS:
A You don't want to say that to an academic.
In brief, it involves the history of the game industry, the history of how people have played games, where, with whom, and why they have played; a little bit of the history of the reception of games; our cultural values; game's representation in the mainstream press.
And then the centerpiece of the study is -- the centerpiece of the dissertation is an experimental study which involves several variables including variables that involve the social capital, cultivation and aggression.
BY MR. SMITH:
Q Can you just tell us what kind of experiment that was?
A It was a one-month controlled panel study of a single video game of a particular type called a massive multiplayer online

game.
Q Have some of the results from your field experiment that made up your dissertation, or part of your dissertation, have they been published in peer review journals since then?
A One was published this summer. Another is accepted and in press and will be published in January of next year. Another is under review. A tangential one was also just accepted last week.
Q Now, putting aside your work on the dissertation in the field experiment which we will come back to, are you generally familiar with the literature concerning video games, in particular, violent video games and their effects?
A I am.
Q How did you become familiar with that research?
A When I was considering what dissertation topic to investigate, I was in an archival research class. So I made it my task for semester to acquire every piece of literature on video games in any range or any topic I could possibly find and to put everything aside, so every newspaper article, every economic analysis, every -- research report, every journal article I could possibly find.
Then when it came time later to be more specific, after I had read through everything generally, I went back and reread something more specifically. So I have a set of literature set aside under the title in a file drawer called

Aggression.
Q Called?
A Aggression.
Q Aggression.
And in addition to that, you have essentially a complete set of literature relating to video games in the academic literature?
A That is correct.
Q Now, do you have experience relating to video games other than this kind of research that you have been describing that is relevant to your opinion here today?
A Yes. As a player, as an interviewer of other players, as someone that talks to people in the industry, my background involving video games is relatively broad although, for my own personal sake, I consider them part of my media diet. I am not sure that is the angle you are interested in.
But I spent a fair amount of time talking to game players and game makers to understand what they make of the games that they play and understand the nuances of the content themselves and how they perceive it.
Q Now, turning to the substance of your testimony then, Professor, what were you asked to do in your capacity as an expert for the plaintiffs in this case?
A I was asked to review and rebut Professor Anderson's declaration.

Q Were you also asked to review some of the findings that the Illinois general assembly -- that the legislature made in the law at issue here?
A Yes.
Q Let me put in front of you, if I might, Plaintiffs' Exhibit 2, which is, in fact, House Bill 4023, or law that is at issue.
THE COURT: Just give him two, and he can give me one of them.
MR. SMITH: That is a good system.
BY MR. SMITH:
Q I am asking you, Professor, if you could refer to page 7. The numbers are at the top where the violent video games portion begins in Plaintiffs' Exhibit 2.
THE COURT: You don't per chance have one other spare of this, do you?
MR. SMITH: Sure.
THE COURT: Thanks.
(Brief interruption.)
THE WITNESS: I see that section.
BY MR. SMITH:
Q Now, do you see the section on findings there?
A Yes.
Q Can you tell us which of the findings by the general assembly you were asked to address?
A A-1 and A-2.

Q So what were those findings then?
A That minors who play video games are more likely to exhibit violently social or aggressive behavior and that the same are more likely to experience feelings of aggression.
Q Okay. What conclusion did you reach about those findings?
A I disagree with those findings.
Q And in what way do you disagree with them?
A Based on the evidence at hand and the literature and my reading of the literature, it's my contention and belief that it doesn't support those findings.
Q Now, you mentioned the literature. What else, if anything, did you consult in forming your opinion that the findings are not supported by the literature?
A My own research as well.
Q Now, if you could turn over to the next page of Exhibit 2, do you see there under the definitions, a definition of the word "violent" toward the bottom of the page?
A Yes.
Q Okay. Could you just read that definition out loud?
A It says: "Violent video games include depictions of or simulations of human on human violence in which the player kills or otherwise causes serious physical harm to another human. Serious physical harm includes depictions of death, dismemberment, amputation, decapitation, maiming, disfigurement, mutilation of both parts or rape."

Q I want to ask you first, Professor, if you could relate that definition to the categories that are typically used and have been used by researchers in the field when they study violent video games and their effects.

How does this definition relate to those categories that are used in the literature?

A We have a difficult time in the literature trying to identify which games mean what, and what we are basically lacking is a typology-passed basic genre categories. Everybody can agree that there are certain genre categories. We know that there are shooters, role-playing games, sports games. But when we get into the nuances of what makes games different from one another and the different settings and the things that relate to them, it becomes very difficult to make generalizable statements based on not having a clear typology across all of the different games that are out there. So it's very difficult to relate this statement to it.

Q Would you say there are any studies out there that have looked at violent video games confined to this particular definition or anything remotely like it?

A There is one study, one of Professor Anderson's studies, that specifically controls for human versus human compared to human versus alien in a test.

Q Are you familiar with any other study that draws that distinction?

A Human on human versus something else?
Q Yes.
A No, I am not.
Q Are you familiar with studies that study violent video games in which they include games which would ordinarily be viewed as more cartoon-like violence?
A I can't recall the distinction between them in any of the research.
Q Now, the law at issue here applies only to distribution of games to individuals under the age of 18. What does the social science literature say about that group in particular in terms of their vulnerability or invulnerability to potential effects from violent video games?
A If I were to refer to the television literature, the picture would be relatively clear. Compared to that, the picture for violent game video effects, of video game effects, is very unclear.

It's difficult to know at which point minors might be more or less subject to risk, and one of the confusing parts is that we generally would expect younger players to be more susceptible or more at risk, but some of the more recent findings have suggested that, in fact, it's the opposite, that findings tend to correlate with age; that is, people are more likely to experience them as they are older.

That's something that has been shown in a

meta-analyiss and also a finding that I was surprised to find in my own work. So the picture around age right now is very unclear.

Q Now, just to slow down here and make sure we have a clear picture, you said there was a meta-analysis out there that included the conclusion that older people are more vulnerable than younger people?

A That's correct.

THE COURT: That's m-e-t-a-a-n-a-l-y-s-i-s, right?

THE WITNESS: Correct.

BY MR. SMITH:

Q Can you tell us what you are referring to there?

A I am referring to a paper by John Sherry, professor at Michigan State University, which is a meta-analysis from Human Communication Research published in either 2000 or 2001.

Q What did he find?

A He found a positive correlation between age and effects, and that it suggests the older the person is, the more likely they were to experience effects.

Q What were you referring to in your own work as being similar to that?

A In my study, I had an age range of ages 14 to 68, and I found that there was an approaching significant finding on age that would suggest that the strength of the effect would rise as people got older.

Q Now, turning to your work in terms of responding to defendants' experts here, you said you were asked to respond to the opinion of Dr. Anderson.

Did you also focus on any of the other expert opinions here such as Professor Rich?

A I also --

Q Dr. Rich, I guess.

A Dr. Rich's work as well, yes.

Q Now, what is your overall opinion about the conclusions reached by Professor Anderson and Dr. Rich about the violent video games?

A That while I agree with some of their premises, I don't agree with the general strength of the conclusions because of some significant base problems.

Q Can you tell us more specifically what conclusions you disagree with?

A The finding that or the concept that violent video games cause aggressive behavior in the players.

Q Now, I want to also make sure we have in the record your declaration itself.

Do you have that up there, your Honor?

THE COURT: Yes, I do.

BY MR. SMITH:

Q Plaintiffs' Exhibit 3, which I placed in front of you, is your declaration in this case, is that right?

A Yes.
Q Now, I want to start then with this concept of causality and how the social science literature proves it and why you disagree with the other experts that you studied.
How does a social science researcher go about attempting to test whether violent video games cause or don't cause certain effects?
A Well, we have a variety of different research methods which we would use that we would be essentially trying to satisfy three main conditions when we were using those methods.
Q Are those the conditions up on the board here?
A They are.
MR. SMITH: I hope that is helpful, your Honor. I don't know how visible it is.
THE COURT: I can see it.
BY MR. SMITH:
Q What are the three conditions before you determine that one thing is causing another?
A Covariation: As the two things move at the same time, not always the same direction, but that they are related. When one moves, the other moves.
Time order, that you have controlled for the effect by placing usually, in an experimental setting, one thing before another, so you know one thing precedes it, ruling out a bidirectional problem.

And number three is sort of a general catch-all, that you have eliminated other possible explanations. Our lingo is plausible alternative hypotheses.

Q Using those three categories, those three prerequisites to a finding of causation or causality, what in your opinion does the existing literature tell about the relationship between violent video games and aggression?

A I think that point one is relatively well-covered. I think that most experts would agree that we have established covariation.

Q Which is to say that people who play more violent games, some tend to exhibit greater aggression?

A Correct.

And point two, that time order, at least for the short-term, experimental work has been well-taken care of and that people have done carefully-timed experiments where they have controlled when the stimulus was applied.

Point three, the broader one, unfortunately, leaves the research open to some criticism because there are other possible explanations for the data.

Q Okay. Now, I also want to just break down, if we could, for the advantage of the -- to help clarify here the categories of studies that exist out there and that you have looked at really in the field of social psychology and studying video games.

Can you tell us what four categories there are?
A Social psychological research methods are cross-sectional; that is, at one point in time correlational analyses, experiments, longitudinal designs, which may or may not include controls, and meta-analyses.
Q Let's start with the cross-section correlational studies and tell me what is that.
A It's usually in the form of a survey, but it doesn't have to be. What it is is a snapshot measure. It's at one point in time, we take a measure of several different things and see to what extent they are or aren't correlated together with one another.
Q What would be the typical variables you would find in a cross-sectional correlational study relating to violent video games?
A You would take a measure of violent video game consumption in some way and also a measure of aggressive behavior in some way and see if those two things covaried.
Q Have there been studies that attempted to do that?
A Several.
Q And when you say aggression in this kind of context, what is it that social scientists mean by the term "aggression"?
A Aggression could manifest in one of several ways, most of which are described under Professor Anderson's sort of umbrella model of the GAM, which I am sure we will get to.

But you could measure them in any number of ways because there are several component parts: For example, aggressive behaviors, aggressive thoughts, aggressive cognitions and beliefs, and some other things which may or may not be debatable.

Q Well, what is it that makes a particular form of behavior aggression, as opposed to something else?
A Well, the formal definition is that it's the intent to cause harm to a person who would seek to avoid that harm.
Q Okay. Now, you mentioned that there are a number of studies that have attempted to correlate some kind of measure of aggression with exposure to violent video games, and what have those studies tended to show?
A They tended to show a positive correlation, in that as one rises, the other rises.
Q Now, what, if anything, do those correlational studies tell us about the effects of playing violent video games?
A On their own they don't tell us anything about the effects because they can't control for time order. This always leaves open the possibility the causal arrow, which is we have two variables, and we call one for shorthand X and another Y. We don't know if X causes Y or Y causes X or if there is some simultaneous bidirectional causality going on. So, there are other possible explanations.
Q So, to be more concrete here, using the variables that are at issue, which is exposure to violent video games and aggressive behavior, can you explain why it is that you can't tell one causes the other?
A Simply by seeing the correlation, all we can determine is that they're related, and it could be that people with

aggressive behaviors are more likely to play violent video games rather than the other causing in reverse.

Q Now, if correlational studies can't prove causation in this context, why do researchers go ahead and perform them?

A There are a number of reasons, both theoretical and practical, why they're good to start with. The first is from the point of view of a researcher, which is usually marshaling some sort of scarce set of resources, correlation studies are often less expensive than a more time-intensive experimental or even long term design. So, it's simply better to do them first for that reason. But from sort of a theory-building perspective, they're very useful in that they can establish --

Q Do you want to slow down? The court reporters are going to lose their ability to get everything down if you don't slow down.

A I respond to dirty looks.

Q I'm sorry to interrupt you. You were talking about --

THE COURT: You lost your train of thought.

THE WITNESS: I did.

BY MR. SMITH:

Q I'm sorry to interrupt right in the middle of talking. You were talking about the theoretical reasons why one would do a correlational study.

A For the theory building point of view, we want to establish that first condition. We want to establish the correlational

relationship.
Q Okay. And is it fair to say then that correlation being a prerequisite is one of the things you would want to check first because it's the easiest thing to check?
A That's right. We would call that a necessary, if not a sufficient condition.
Q Okay.
A And the other thing that correlational studies can also do is they can often include other possible explanations, just not the time one, usually, at the same time.
Q Say that again. Or maybe explain that so I'll understand.
A A correlational analysis wouldn't limit the researcher to only looking at the bivariate case between those two things. They could include other possible measures to rule out some possible explanations, just not all of them, and chiefly the one with time.
Q Is that typically done through a regression analysis?
A It can be, so long as the researcher is careful not to imply causality, which is tempting when you have an independent variable dependent variable equation.
Q Right. Now, let's move on to the experimental studies that have been conducted as to violent video games. First of all, what does an experimental study in this context mean?
A It means that the subjects in question are being given some sort of stimulus. Usually, there is a pretest, an

administration of a stimulus, followed by a post-test, and that the results that we're interested in would be the post-test numbers with the pretest numbers subtracted out of them. We would then compare that result with a control group which had the similar pretest/post-test, but the group that had the stimulus which was different on some important theoretical dimension.

In this case the ideal situation would be a game in the treatment group would feature violent content, and then the game in the control condition would feature everything except the violence. You would want those things to be as equivalent as possible on every other dimension so that you weren't introducing any other possible explanation for an outcome.

Q Now, in the literature that exists out there, what is the amount of time elapsed in a typical experimental design?

A The typical experimental design lasts somewhere between ten and 30 minutes for the duration of the stimulus itself. I've seen studies as short as ten minutes. The longest one that I'm aware of is 75 minutes.

Q And how long after the administration of the stimulus do they typically take their measure of aggression?

A It varies, depending on the measure of aggression. They're usually directly following. It's going to vary between a few moments after and 15 or 20 minutes after. And some of the measures afterwards have another intervention phase in front of

them, such as irritating the subjects. So, that would prolong the actual time to measurement, but it's usually not the sort of thing we would hold against the research.

Q What kind of measures of aggression does one see in these experimental studies?

A There are several. Since I mentioned there were those different component parts in the general aggression model, there is a scale -- basically a line for each sort of part. If you wanted to measure beliefs in aggression, you would ask some questions. There are also -- I'm sorry. Most of these are scaled questions, which is we ask, say, ten questions which are all related to one underlying construct, and the idea is that by asking all ten, it's a more valid and reliable way of trying to get at that underlying construct than asking one question. So, there are actually a series. There are also observational methods of seeing what people do and then task methods, asking people to complete word tasks or perform some kind of action.

Q Okay. Now, when you say observational, what kind of observations are made?

A Some of the ones that have been used in the video game literature have been observing the free play of young children out on a playground, but one could also categorize many of the action tasks as something that you measure through observation, as well.

Q Okay. Now, what have been the results of these studies

generally speaking?
A Generally speaking, with a couple exceptions, they point to short term increases in aggression following the experiment.
Q Now, do you have any concerns about relying on the results of those studies as proof that violent video games cause an increase in aggression?
A I do. And it depends in part on how one defines an increase in aggression, but I have several basic issues with the designs.
Q Okay. Can you tell us sort of just generally what your list of concerns is about experimental research in this area, and then we can maybe take them in more detail?
A Sure. One minor issue is setting. Another is the measurements that are taken. Some more important ones to me would be the context of the play, that is, the social context of how the game is played in the laboratory. Probably the largest complaint I have or problem I have with literature relates to the duration of the effects, that is, the length of the stimulus and the claims that are then made after the testing phase.
Q Let's start with those. You said you had concerns about the setting in which the experiments occur.
A Correct. Generally speaking, researchers are concerned that by bringing someone into a laboratory, we are bringing them into a relatively alien environment, and they might behave

or react in a way which isn't reflective of how they would feel comfortable out in the quote, unquote real world, and if you get results in a situation like that, they could be explained by the fact that the person was in an artificial setting rather than the stimulus itself.

This is in some cases known as the Hawthorne effect, which is the idea that people are being tested with the intensity of light in a room, and they turn the lights up, they turn the lights down, and they found the effects got stronger and stronger, and it wasn't that the lights were up or down causing anything, it was the fact that the people were being messed with. It made them paranoid.

So, as experimenters, we're constantly concerned that we are having some kind of Hawthorne effect. So, if we're going to have people play violent video games, we want to make sure that they're playing them in the kind of setting in which they would play them outside the laboratory. So, a conservative researcher would set up some kind of naturalistic looking space, something that looks like a living room with a couch. Again, this would depend on the audience -- I mean, sorry, the sample age and background.

Q And you say you have concerns that that's not always done?

A It's not always done. I've toured several facilities that test for violent video game effects. The typical lab as represented by facilities in my own university. I've toured

the facilities at the University of Southern California and at the Ohio State University. And they all appear to be the sort of generic office park Dilbert like cube farm, for lack of a better term, that is not typical of the settings in which the subjects would normally play the game. This isn't a criticism of all of the work, and researchers vary. Some set up very naturalistic settings and aren't subject to this problem at all.

Q Now, you also mentioned you have concerns about the social context in which these experiments occur. Can you explain to us what you mean by that?

A By social context, I don't just mean what games are played, but I mean with whom they're played. Something that we've learned in the history of communication research is that other people wind up being immensely important variables in trying to figure out what the actual effects of media are.

And early on in the persuasion literature, which is the sort of granddaddy of them all that birthed our discipline, we found that there were relatively direct effects and that people were very persuaded. This all came out of propaganda research around World War I, and people probably most famously think of The War of the Worlds as a case where people were directly affected by a media stimulus. But in ensuing decades we found that most of the effects were moderated by other people in addition to demographic variables that we now take

for granted.

So, my concern is that if we want to study how people are using video games, we ought to be doing research in which they use them in the way they would use them outside of the laboratory, and my research into the social history of play suggests that most people tend to play together; although, these patterns have fluctuated over time for technical and historical and political reasons, but that at least now, especially, the trend towards playing with other people is paramount. So, if you get people in a lab, and they're playing by themself, it's not entirely clear what use the results would be.

Q Is there particular research you would point to that shows the effects of changing the social context in which you conduct such an experiment?

A There are two papers I reviewed recently, that is, in the last couple weeks, which talk more about the social context of the play, which relates as much to the in-person settings as it does to the way the game is played. Studying video games is a little bit more complex than studying television because, first of all, people are playing rather than watching, and when they're playing together, they could be doing it in a variety of ways.

So, I've reviewed an unpublished manuscript. I was the peer reviewer for a paper about a week and a half ago in

which the experimenters were varying whether people were playing -- everyone was playing on teams, but the experimenters were varying whether they were playing against other teams or against the computer.

And then there's another study where similarly, but slightly different, people were varying whether they were playing in collaborative versus competitive settings. And in both studies it was the more antagonistic set of play that wound up explaining all of the hostility that came out of the studies. To me this is an example of where the research should be moving, and it also explained that the social context was a thing that explained the finding and how it interacted with the actual game itself. So, when you change the social settings, the effects change completely.

Q You mentioned also a concern about a measurement problem in the context of these experiments. What was that about?

A This is a relatively minor point and not mine originally. I, generally speaking, don't have a problem with most of the after-the-fact measures, most of the post-test measures.

Q Measures of aggression.

A Measures of aggression. I don't have a problem with sound blasts or with scales or with anything of those things and would be likely to use many of them myself.

One that seems worth exploring to me is something that I read through Dr. Goldstein's work, which is trying to make

sense of the observation of free play among adolescents and whether or not it represented aggression because the experimenters would observe people out on the playground, children, playing, and conclude they were being violent. Dr. Goldstein's hypothesis is that it's only aggression if it's intent to cause harm, and were the experimenters seeing people actually trying to cause harm or were they merely imitating what they had seen in the game and not intending to cause harm, or was it some kind of roughhouse play, which is fairly common, and it usually doesn't wind up with harm.

This is not to say that those measures are entirely invalid. It's just an alternative explanation that would need to be accounted for before I would feel comfortable accepting those particular results.

Q Now, in your declaration -- I'm not sure if you mentioned it before this when I asked you to do the list, but there was some discussion of arousal and whether or not that's sufficiently accounted for. Can you tell us about your concerns in that area?

A The arousal confound is essentially the idea that perhaps the effects could be explained by the fact that the person playing the game was excited or stirred up rather than it had violent content in it. In order to control for that, in order to eliminate that hypothesis, the experimenter would have to have a game which was as equivalent as possible to the

stimulus, the treatment game, on every dimension but violence. In other words, it would have to be equally exciting, equally arousing. And it's my opinion that most of the research to date doesn't address that confound particularly well, and it isn't until about 2000 that researchers start to include that kind of thinking in their experimental designs.

Q Are there other dimensions on which it's important to equate the control game versus the violent game, such as frustration and how much fun it is and other matters?

A It should be on every dimension that could possibly interact with the dependent variable of interest. So, if we're thinking of some specific measure of aggression, it should be any dimension of the video game which might affect that. So, one might assume that frustration with playing a game could definitely increase some kind of aggressive behavior.

If the person was new to a game -- this is one potential problem with some of the experimental designs is that you're getting people who are frustrated by the newness of the game, and if they are playing ten or 20 minutes that, in fact, what you're seeing is their difficulty on the learning curve, not any kind of aggressive result. So, that is one of many, and you just want to make sure that things are as equivalent as possible on all of those dimensions so that no one gets up on the witness stand and says, "Aha."

Q Can you give us an example of a --

THE COURT: Before you go on, I need to take about a ten-minute break. We're going to break for about ten minutes at this point.

MR. SMITH: Sure.

(Brief recess.)

THE COURT: Okay. You can resume.

BY MR. SMITH:

Q Professor Williams, can you give me an example of a study in which you see this arousal confound occurring?

A Most of the work prior to 2000 is subject to this. The study that came out in 2000 by Anderson and Dill, which studies two games, one called Wolfenstein 3D and one called Myst, is the first to try to get at this issue by directly pairing games and trying to match them and by doing a pretest. It's the first step in that direction. But it's still probably suspect to this problem.

Q And why do you say that?

THE COURT: This problem being?

THE WITNESS: The arousal confound problem.

THE COURT: Okay.

THE WITNESS: The control game possibly not matching on the equivalent characteristics.

BY THE WITNESS:

A I say that because the game that was used in the control case to me is radically different than the game used in the

treatment condition on a number of variables.
BY MR. SMITH:
Q What were the two games involved?
A Wolfenstein 3D and Myst. They happen to be two games I'm familiar with from having played and watched others play. So, it gives me a little bit more depth and background to be able to talk about them, compared to other games.
THE COURT: M-y-s-t, right?
THE WITNESS: M-y-s-t. That's right.
BY THE WITNESS:
A Myst was the top selling PC game of all time until just a few years ago. It was a very popular, widely played game.
BY MR. SMITH:
Q That was the control game in this instance?
A It was.
Q And what are the characteristics of that game?
A It's a very slow moving, very ethereal kind of game. It's basically a puzzle-solving game, but in a very aesthetically beautiful and pleasing lush environment. It's sort of the Wyndham Hill of video games in the way one moves through the environment. When one reaches the end of a screen, the next screen loads up, and there's another beautiful scene. There's no threat. There isn't really pace. It might come from the first person point of view, but it looks more like a slide show than a walk-through.

Q And what are the characteristics of Wolfenstein 3D?
A Loud, fast, scary, hostile, action-packed, and fast paced. To me, the opposite on many of those dimensions. It's the heavy metal.
Q What kind of game is that?
A It's a first person shooter title.
Q And can you tell me how those two games were treated in this Anderson and Dill study in 2000?
A Well, the first thing the experimenters did, which is definitely the right step, is to pretest them to see if rather than someone's subjective interpretation, like my own or their own, someone would try to do an objective test to make sure that the two games were matching on all of the stimuli of interest, of the variables of interest, and they did and concluded that they were matching on all but I believe action. No, I'm sorry. They found them equivalent on action. They found it not matching on excitement.

And so, if you do a pretest and then you find out in your pretest that they aren't perfect, what you could do is use a statistical control later on to control for the way that they were slightly different. You could adjust for that later on.

My concern was that those two games were rated equivalent on action. I'm not entirely sure what their definitions of action versus excitement were, but they're the kind of things where I would have expected radically different

scores based on just a basic on the surface of it review of these games, and a pretest that would not find that to me would be problematic.

Q Now, I believe that the fifth category of concerns you have about experimental studies related to -- and I think you said this is the most important -- related to duration. Can you tell me what you meant by that?

A This is probably my main objection with the conclusions from the literature to date. This is kind of the big picture idea. It's that we have short term studies of video games, and yet long term claims are being made. To me the claims should match the stimulus length, and even though that's a tough charge to give to researchers, it's nevertheless the appropriately conservative thing to do through social science.

Q Can you tell me what you mean by the claims should match the stimulus length?

A I think if you want to say that video games cause X over a week, then you have to watch someone play video games over a week. I think if you want to talk about months or years, then you need to do tests of months or years.

I don't think it's appropriate to take measures that are ten minutes long or 20 minutes long or 30 minutes long and talk about effects over the lifespan. I understand the theoretical reasons behind this because of the potential parallels with the television research, but to me that's very

different than saying that this has been established, especially when there may be fundamental differences between the media.

Q Why do you think there might be fundamental differences between video games and television in terms of whether short term experiments can be extrapolated to longer term effects?

A I'll start with the first part of the question, which is how are they fundamentally different. Well, first of all, the content is different. There's a different range of characters, a different range of genres, a different range of -- the source content is fundamentally different. You can't change the settings on a television show from fast to slow. You can't change the scenarios within the television show.

But I think the more fundamental difference is that you watch television, and you play games. They're used differently and that that might lead to different cognitive processes and how that information is taken and used by the player versus the viewer. I can think of some potential differences, which may or may not offer a confound of some of the hypotheses people are interested in.

Q Now, what, if anything, does the social science literature tell us about the effect of playing a game a longer time, over a period of hours or days or whatever, in terms of how that affects the correlational result or the experimental results in terms of aggression? If that question makes any sense.

A It does, and, unfortunately, the answer is that we don't have those data. We only have two studies that go longer than 75 minutes, and they are my study that was published just this past summer and the unpublished study that I was given to review when I was writing my declaration that's done by Professor Anderson and his colleagues. As far as I know, these are the only two studies which have measured any kind of game play longer than 75 minutes.

Q Okay. Well, let's focus first on the delta between ten minutes and 75 minutes. What does the research tell us about the effects of playing a game longer in that range?

A In Professor Sherry's meta-analysis, he noted that when he looked back through all the different studies that had been done, he noticed that there were two studies of the same game, but for different durations, which is a happy coincidence for the meta-analyst to go back and make some kind of conclusion about duration.

So, there were two studies of the game Mortal Kombat. One lasted for ten minutes; one lasted for 75 minutes. The ten-minute study found a very large effect size, and then the 75 minutes one, according to Professor Sherry's extrapolation of the results, came up with a relatively small, almost zero, effect size. His conclusion was that we wish we had more literature on which to base these kinds of decisions, but it seems like a safe assumption to show that the effects fade out

over time, which in turn offers some support to the arousal hypothesis that as arousal fades off, it's replaced by fatigue or boredom, and you're not looking at aggression at all. You're just looking at people becoming accustomed. And it might even be a way of explaining again that frustration finding as people become more familiar with it. It's another possible explanation not mutually exclusive.

Q Okay. Now, you mentioned that your study goes beyond 75 minutes. The timeline there was a month of exposure?

A That's correct. I asked the subjects to play for a minimum of five hours a week. Most met that condition, and the average time of exposure across the month was 56 hours of exposure.

Q Let me just put your article in the record here. Exhibit 4, Professor, is that your article writing up the particular portion of your dissertation work that was a field experiment and its relation to aggression?

A It is.

Q And where was that published?

A Communication Monographs this past June.

Q Is that a peer-reviewed journal?

A It is. It's a journal of the National Communication Association.

Q Okay. Now, let's just talk a little bit about how you went about this study and why you went about this study. First of all, what kind of a group of people did you use in this study?

A For the results reported here, I used first time players of this type of game. I wanted to get -- rather than some kind of interval in the middle of an experiential curve, I wanted to get what happens to people when they play from scratch, but I didn't want to worry about that kind of short term problem. I wanted to have a long, relatively long, exposure time so that I could not worry about those initial arousal possible confounds. I also picked one game, notably, rather than several games so that I could have more control over exactly what they were playing and watching.

Q So, how large a group of people did you put together?

A Well, the initial panel is 400 people in the treatment group and 400 people in the control group, but as part of the first wave of the research, I asked people about their prior experience without telling them why or how it would affect how they would be assigned or used, and I found that significant chunks of them had played this type of game before. So, they were taken out of these analyses altogether. So, we were looking at more like about a hundred in the treatment versus a hundred matching in the control that's higher for the control because -- it's higher for the control.

Q Okay. Now, what was the age range of this group of 200 people or so?

A The average age was 27, and the lowest was 14, and the oldest was 68.

Q And the game you asked them to play was?
A It was called Asheron's Call 2.
Q And tell us again what kind of a game that is.
A By genre, it is a role playing game, which means that the person starts a character and then advances that character through some kind of usually fantasy like environment by platform, that is to say, the way it's played or what machine type it's played on. It's a massive multiplayer online game, which makes it very different than other sorts of games, but probably indicative of the way games are going to be played in the future. It's a game where instead of people playing for a short amount of time, they tend to play for a long period of time because this character stays consistent, and they keep revisiting that player. And they also instead of playing with a small number of people play with very large numbers of people. There could be several thousand people on any one game server at a time.
Q To what extent is the action in that game characterized by violence by the character?
A I wouldn't put it at the high graphic end of violence. It wouldn't compare to Doom 3, the latest first person shooter, which has extremely realistic physics where the individual droplets of blood are tracked by parabolas and such. It is, however, certainly a very violent game. It features consistent combat between the players and monsters, usually. Sometimes

other players, but typically it's the monsters, and when the monsters or the player die, they usually collapse, make some kind of fairly awful dying sound or scream or wail, and then smoke comes up off of their bodies. So, it's not exactly cartoon violence, either. I'd put middle to high on sort of the violent content spectrum.

Q Now, you mentioned there was a control group in this study. Can you tell us why you decided to have that?

A I wanted to make sure that any results I had were the result of playing this game rather than the results of being in the study. There was something possibly that I couldn't have control about how the question order occurred or demand characteristics about the right kind of answers, the equivalent of the Hawthorne effect of the lights going up and down. If you have a control group, that gets you out of those kinds of problems.

Q And how much on average did each person in the noncontrol group play the game during the month that you studied?

A The treatment condition?

Q Yes.

A They played an average of 56 hours.

Q And what measures of aggression did you use to assess the effect of that 56 hours of exposure on them?

A I used several, not all of which are reported in this article. I used the normative beliefs in aggression scale.

This would be aggressive beliefs, one of the components of the GAM. I also used the Buss and Perry more traitlike measures, which are verbal and physical aggressions, but that's not meant to reflect short term changes. It would be arguable whether or not one would find something in a period even as long as a month. And also some behavioral measures, notably whether or not someone received a speeding ticket or was in an argument or a fight with a spouse or with a boyfriend or girlfriend.

Q And you tested these people before they had the exposure and afterwards; is that correct?

A That's correct.

Q And can you tell us what results you found in terms of impact on these measures from the exposure to the game?

A For the first-time players that I'm reporting on in this paper, there were no changes. The only thing that came up which was of interest was this finding on age that I mentioned, where it looked like people as they got older might have had a higher score on some of the aggression measures.

Q But if you average all of them together, there's no effect; is that right?

A That's correct.

Q Now --

A Well --

Q Do you need to explain?

A You're not really averaging them together, and there's no

need for controls, either, because there's random assignment between treatment and control condition. I just wanted to make sure that it was clear that there is some experimental control there.

THE COURT: When you said on the age difference, I think you said before that it was not statistically significant, but it was close to it.

THE WITNESS: Between the treatment and the control groups?

THE COURT: Yes. I'm talking about the thing you said about as people were older, there seemed to be more of an effect.

THE WITNESS: That's correct. It was what we describe as marginally significant. I think you heard earlier in Professor Kronenberger's testimony that we have a P level, getting close, but not quite there.

THE COURT: Right.

THE WITNESS: The theory would have suggested that it would have been the opposite, which was why it was notable and we reported it.

BY MR. SMITH:

Q Okay. Can you tell us what conclusion you draw from your study about whether violent video games cause significant aggression?

A I wouldn't draw any conclusion about that statement based

only on my study. From my study, I would draw conclusions based on these particular kinds of measures, which are a subset of the many measures in the GAM. For this one game, one might make the case that games similar to it would be worth talking about, as well, other MMOs, in a fantasy setting and for a month, no more, no less.

Q Now, the third category of methods for studying the questions we're talking about here we have up on the chart is longitudinal studies. Can you tell me what a longitudinal study is?

A A longitudinal study seeks to fix this duration problem altogether by looking at somewhat of a relatively long period of time. It is as simple as it sounds. The typical longitudinal studies, at least the ones that we pattern ourselves after in the television violence literature, last for an extremely long period of time. They are more lifespan type studies.

The most notable ones done by Professor Huesmann, who was at Michigan when I was there, can last for decades, and the researchers would issue reports at regular intervals to see as the effects go longer. They're very hard to do because researchers themselves only live so long, and they require a lot of money and a lot of setup time, and they typically don't feature a control group because this wouldn't be feasible in a truly long term setting.

Q And why is it important to study these kinds of effects over the long term?
A To have some leverage to talk about effects that matter. It's not clear that knowing what happens in ten minutes, when there are these other possible confounds and there could be a fadeout, tell us a lot, but if you found an effect after a week, that would be more interesting, I think, than after a half an hour, and you're talking about diminishing rates of return here, but you have more leverage and power to talk about long term effects as you have long term studies. A year long study would be an amazing advance in our field right now.
Q Well, have there been longitudinal studies in violent games and aggression?
A No.
Q You mentioned I think earlier that there was one study by Dr. Anderson that's not yet published that at least characterizes itself as a longitudinal study. Can you tell us what that -- can you just describe that for us?
A His team study -- I'm not sure in what phase of preparation it is. It didn't look like it had been through the peer review process yet. It looked like it's sort of that tentative. So, it's awkward for me to criticize something that the authors haven't had a chance to do. It's not my normal venue to do such a thing.

But to be simple, if I can describe it, I will. They

took third, fourth, and fifth graders and asked them pre and post-test questions, and the pre and post-test window ranged from two months to six months. So, for some people it was a two-month study and for other people a six-month study. It's very different than my own in a couple of ways, if we're trying to draw comparisons.

Q Well, what are the key differences in your mind?

A Length is longer. Lack of control limits some of the conclusions. I had a control group, and they did not. I think the key differences otherwise would be the age of the respondents, which is something I'd like to learn more about personally from the results of that study, and also the fact that it's a test of violent games at large, all of them, versus one specific defined tangible game.

Q Now, what was the age group studied there?

A Third, fourth, and fifth graders.

Q Okay. And you say it was violent games at large. How did that study go about identifying people who had -- and measuring people's exposure to violent games?

A As best I can re-report their findings from the data they give us, it's not perfectly well laid out. So, I'm not completely sure here. But it seems like these are self-report measures from the third, fourth, and fifth graders where they ask the students to list a handful of their favorite games and then to indicate the level of violence within each of those

games. So, it's essentially self-reports of their favorites, including an assessment of the content.

Q So, the games at issue wouldn't necessarily include games for most of these kids that would be very violent by standards of adults?

A It's hard to know what games they played. Probably they skewed younger, if we believe the statistics on who plays what sorts of games, but without that information supplied by the research team, it's just games, and I can't say more.

Q Are there statistics out there about who plays what kinds of games?

A There are statistics on purchasing patterns. I don't know great statistics on play patterns. It's hard for me to make that statement.

Q Okay. Can you tell us do you have some concerns about the structure of this study and how it was done?

A A few things in the way that conclusions are drawn. I have a problem with that self-report measure of media. It's suspect to me for a couple reasons. One is that I have a hard time defining violent content in video games, and this is all I do. I play them for leisure. I study them at work. I know them pretty well. But I wouldn't use my own assessment. I would use some kind of content analysis with multiple coders to establish reliability. So, essentially, we're establishing a lot of noise there.

Q Who is it that established the violence? Which games are violent here?
A The students themselves.
Q The students themselves in third or fourth or fifth grade?
A And one can make an argument in two directions, that they could have been underrepresenting the level of violence in the games that they listed or overrepresenting. I could think of strong arguments to go each way. People who consume a lot of violent television and movies tend to underreport, the argument being that they're desensitized to it. So, in that sense they might have underreported the level of their violence. On the other hand, they're third, fourth, and fifth graders who, as far as I can tell, want to act like fourth, fifth, and sixth graders and want to probably show that they consume more violent content than they do to show that they're more grown up than they are. So, it's just the unknown.

We report a reliability number so that we can trust our measures, and depending on -- this is a number that goes from zero to one, and when that number goes under eight, some people will say that you cannot publish it. In some fields and some journals, that number is lowered to point seven, and very occasionally will numbers under that be accepted. The number on this particular measure, which is the central measure of that study, is point six eight. So, by most standards it's under the acceptable number.

This is the kind of case where we would ask the researchers to explain why it should be accepted rather than tossing it out. Again, this is not being entirely fair to the research team. We would give a chance to explain why should we trust such a low number.

Q Can you tell me what kinds of measures of aggression were used in this study?

A They used several. One of the ones that springs to mind is a series of vignettes where they ask people to react to hypothetical situations. For example, you're passing by some other children in the hallway, and they make snickering sounds. Are they laughing at you, or are they laughing at something else? It's the kind of thing that would get at what we're talking about. We'll be talking about hostile attribution bias, in laymen's terms kind of paranoia.

In addition to that, I think they had several other standard measures. I think the more powerful ones were the teacher and peer assessment scores for aggression and violence, which I think are good measures.

Q Well, what were the results that were reported here with respect to the effects over this two to six-month period of the greater exposure to more violent games?

A There are several outlined on a table at the end of that study, and I think they're best explained through a series of tests they describe as destructive analysis, which is that they

start with the correlation between violent game play, problematic or not, a time one, and some kind of aggressive outcome at time two. To the extent that those things are correlated, they've controlled for time, and they can say something interesting.

So, what they've done is they get an initial correlation, and then they start partialing out these other potential explaining variables, these other plausible alternative hypotheses. Well, okay. You have the correlation now. Let's add in gender. Let's add in age. Let's add in these things and see if anything is left. Let's add in parental involvement. Once those things are partialed out, there is a small number -- there are numerically small effect sizes on these dimensions. These effect sizes basically explain how much of the change is explained by playing violent video games.

What's difficult to assess about the measure is that we don't have the raw numbers themselves. In other words, we can't say that aggression in some measure went from a seven to an eight and that we can explain 2 percent of that change. We don't have those round numbers. So, we have these small percentages. We don't know small percentages of what. So, is it a small percentage of a big thing or a small percentage of a little thing. Is it substantial or negligible.

Q And the percentages we do get are in the range of 2 percent

or a little more?
A I think the key percentages on the main variables that showed up after -- some things like prosocial behavior, a decline of prosocial behavior, if I recall correctly, once partialed out, there was no finding. But the three that are remaining, I believe, were 1 percent, 2 percent, and 3.6 percent.
THE COURT: One percent change you mean?
THE WITNESS: One percent of the change could be explained by play. We don't know what the absolute --
THE COURT: Okay. One percent of the -- in other words, you had whatever the amount of the change was, and once you controlled for the other variables, you were down to 1 percent of the change that could be explained by playing the game in that one instance.
THE WITNESS: Correct.
THE COURT: And the others were how many?
THE WITNESS: Two percent and 3.6 percent on the key three variables.
BY MR. SMITH:
Q Now, can you tell me why it is that this study, this one longitudinal study, doesn't lead you to believe that the legislature's findings that we talked about at the beginning are correct?
A It's mostly the lack of information. I don't know what to

make of them because I don't have the absolute numbers. If I had the absolute numbers, that would be the sort of thing where a policymaker would say this is or isn't a big or a small problem. That's more of a normative assessment.

With the issues about the self-assessment of violent video game play at time one and this question mark about the size of the findings, I just don't want to interpret the study. I just don't think it's ready in its current form. It might be later. This is something I -- it's an odd thing to comment on. This is not how we usually do this. It's a potentially exciting interesting study.

Q Now, would it be possible -- assuming this study were to get cleaned up and some of these issues were taken care of, would it be possible to extrapolate from a study two to five months in elementary school to conclusions that people are going to grow up and be violent?

A No. I think it would give us power to talk about two to six months in elementary school at these particular ages. I think also, notably for policymakers, it might actually be able to help us with this age issue if we knew what happened in grade three versus grade four versus grade five. In other words, if the effects were to go up or down, that's very interesting and could help fashion policy. My understanding now -- and I'm not supposed to get into policy -- is -- sorry, I can't help myself -- is that it's 18 and under. Well, here's

an actual range. You could actually get an answer.
Q Now, you mentioned there were these much longer longitudinal studies in the area of television research. How do you see that as relating to the assessment of whether violent video games might have or might not have effects over the long term of making people more aggressive and violent?
A If one can make the assumption that video game play is just like television effects or more so, then that research would be extremely helpful and useful. I happen to buy the television violence literature. It works for me. What I have a problem with is using it and applying it automatically to the video game effects literature because I think there may be fundamental differences between the media. So, to me, until someone definitively proves otherwise, they're apples and oranges, and they should be treated independently.
Q Now, you mentioned before, and we have up on our list here, a kind of fourth category of method, which is a meta-analysis. And can you just briefly tell us what that is?
A A meta-analysis is when a researcher doesn't collect new data, but instead looks at what's gone before. Basically, pools all of the different findings. The advantage of meta-analysis is you suddenly get a very large sample size, and you get a test, hopefully across a similar range of tests, of slightly different settings because any one study is going to be subject to some kind of flaws and limits, and if you can get

a bunch of them in one study and they all look the same way or they all suggest something, it makes us more comfortable with the results. It also can allow for the analysis of some of these bigger picture patterns. For example, Professor Sherry's finding on age and the comparison of the two Mortal Kombat studies. Those are the kinds of things that can come out in a meta-analysis.

Q Now, the meta-analyses that exist in the area of studying violent video games, those are analyses which consolidate or combine either the short term experimental studies or the cross-sectional correlation studies or both; is that right?

A That's correct.

Q And so, does the fact that they're put into a meta-analysis in any way effect the limitations of what you can conclude from a correlational study or experimental study about long term effects?

A No. The study is as good as the source studies that go into it, and, in addition, responsible meta-analysts would separate the cross-sectional studies from the experimental studies and show them differently, which is something that Professor Anderson has done in his, but it doesn't help you if the source studies aren't trustworthy in the first place, which is my opinion of the experimental work before about 2000.

Q And is it also true that whatever reliability the studies may have, if you look at a bunch of experiments together and

they're all about the short term, that doesn't make it any more valid to extrapolate from experiments to long term effects?
A No. If you look at the length of exposure in all the source studies in the meta-analysis, it might let you say something about effects over relatively short periods of time. If all the studies are ten minutes, 20 minutes, and 30 minutes, you could compare those, but you still can't go past the 30 minutes. And so, they all go to 30, a couple go to 40, and one goes to 75, but, generally speaking, they're all these very short term studies.
Q Now, in your field I think you mentioned before there are times when people kind of construct theoretical models, how they think a particular kind of medium is affecting people?
A Yes.
Q And is the GAM that Dr. Anderson has developed an example of that?
A It is in a sense. It's sort of an umbrella for some existing models because we have a little bit of an alphabet soup of potential models. The GAM seeks to take some order out of chaos by combining some of these different approaches. There are several different potential routes to aggression. And so, it identifies them and says here otherwise they go and let's just call it one thing.
Q Has that model or any other model at this point been sort of proved correct in the area of violent video games and their

effects?
A Not in my opinion.
Q Okay. And do you have an opinion about the validity of Professor Anderson's particular theoretical model, the GAM?
A I think it's the right start. I think it's missing some pieces. It's not the kind of thing I would throw out and start from scratch because I think the questions are worth studying. I think the basic premise of the thing is just fine, but I think it's, number one, not allowing for the difference between the two media, and it's assuming that the second one is simply the first one but worse.
Q The two media being television and video games?
A That's correct. Number two, it doesn't allow for social textural moderators, which by my view of these last two very recent studies and my own work and thinking about games seems to be very, very important.

And number three, there is a potential problem with the hostile attribution bias portion of the model. I say potential because I have a result which contradicts the way that the GAM suggests that this part of the model would work. But it's just, again, one game or one test, whereas it works differently in the longitudinal study of Professor Anderson's that I've reviewed. It just puts a question mark in my head about how that part of the model should work. It's this box in the middle, and it's not clear to me that it should be there or

should function the way that it does.
Q What is it that your study shows about hostile attribution bias and how it functions?
A This is -- you're going to have to bear me with me a little bit here. This is a theory called cultivation, and it basically means that if you consume a lot of media, you start to think that the world looks like that media. And the classic case is of someone who watches a lot of television news will think that their neighborhood is more violent and scary than it really is. It's a very, very intuitive appealing mechanism to think about.

The problem is that it's almost entirely debunked in the research in the way that it was originally constructed. It's one of our field's, communications, more famous back and forth debates as to whether or not this data was valid or was junk, and the exchange that went back between the research team is the sort of equivalent of the Far Side comic with the guys in the white coats throwing things at each other. It's the kind of thing we teach in all our intro classes.

One of the problems was that someone found the astrological signs of all the people in the original source study and found that they were a better explainer of the effects than the television they consumed, which is a fairly devastating attack on any level, in addition to being somewhat mean.

THE COURT: I guess it could be proof of astrology, I think.

THE WITNESS: Could be. What it told most of us, and there have been quibbles back and forth since, is that cultivation as originally composed doesn't work. When I say as originally composed, it's the idea that you might see some specific thing on television, but it will then spread to related things.

In other words, you might see something which is part of the overall concept of crime, and it would then spread to other kinds of crime. We call this spreading activation.

I tested for this very, very specifically in my game study over the month by testing for cultivation measures, and I had a test that would have shown, number one, is there any cultivation at all, and; number two, does it work by this kind of spreading, or does it stay constrained to the very specific particular incidents.

And I found that it stayed constrained to the very specific instance. It didn't spread to semantically related similar other things.

BY MR. SMITH:

Q To be more concrete about it, what is it that people's attitudes --

What kinds of attitudes changed and what kinds of attitudes didn't change during that month that they were

playing the game?
A Well, I asked them to give me the likelihood of four types of violent crime in the real world, in other words, their perception of how often these things occurred; and the four things were rape, murder, robbery, and assault with a weapon.

The test of the spreading versus specific can be found in that in the game world, only one of those things exists, assault with a weapon. It's basically the entire content of the game.

It's nothing but the player and the monster doing this to each other, 56 hours of it, hundreds of times, over and over every hour, just a constant steady stream.

Players who played the game wind up thinking that they were more likely to be assaulted with weapons on the street than people in the control group who experienced no change. But they weren't anymore likely to think the other three things happened.

In other words, there was a cultivation effect, but there was no spreading.

Q I want to conclude, Professor, by just asking a couple of questions about the existence of consensus in your profession about the effects of violent video game exposure.

Are you familiar with Professor Anderson's assertions that there is such a consensus?

A I am.

Q Can you tell me what your professional judgment is about whether such a consensus exists?
A Well, when one looks across disciplinary boundaries, there is much less consensus. I would assume that some portion of the bodies which have issued the statements about violent video games' effects, notably the American Psychological Association most recently, there's probably some consistency within that body.

In communication and in the game specific research circles which I occasionally move in, there is no consensus. If there is any consensus in those groups, it's the opposite of the findings.
Q Now, you talk about game specific circles. Are there particular organizations you are talking about there?
A I am highlighting two organizations. In communication research it's the International Communication Association. But in game specific research, it is an organization called the Digital Games Research Association, or DGRA for short.
Q What kinds of professions are reflected in the members of those organizations?
A The membership of DGRA is more qualitative than quantitative. It has some social scientists, but for the most part it tends to be people using anthropological or ethnic graphic research methods, people who would, rather than collect statistical data, would sit in with game players and talk to

them about their experience. They tend to get depth rather than the breadth that the social scientists get.

Q What can you tell us about the perspective of members of those two organizations on the question of whether violent video games are harmful because they cause aggression and long-term?

A The membership of DGRA, if one can sustain the irony, would be outright hostile towards it. They think that it's the wrong question to ask. They don't believe the findings and they consider it a witch hunt.

The membership of ICA is relatively agnostic about the effects, basically reflecting my own position, in that most of the junior and senior researchers talking over this issue, it's not that we have come down saying, "yes, there are, yes, there aren't," but that we need some more data to make good, sound conclusions, and we are openminded about it.

MR. SMITH: I have no further questions, your Honor.

THE COURT: Cross.

CROSS EXAMINATION

BY MR. KASPER:

Q Professor Williams, my name is Michael Kasper. We met out in the hallway a while ago.

First of all, Professor, you do not have an opinion about whether or not exposure to violent video games lead to aggression, do you?

A No.
Q Similarly, you don't have an opinion about whether exposure to violent video games leads to an increase in feelings of aggression, is that correct?
A That is correct. I assume by violent video games, you mean all?
Q Correct.
A Then no.
Q And you, in fact, have in the past used the word "agnostic" to describe your feelings on this position?
A That is fair.
Q And do you recall being quoted in the New York Times as saying, quote -- I am sorry -- the Washington Post, as saying, quote, "I am not saying some games don't lead to aggression, but I am saying the data are not there yet"?
Do you recall that?
A Yes.
Q That is a reflection of your agnostic position?
A Yes.
Q When you're talking about your disagreement with the findings of the Illinois general assembly in enacting this legislation, what you are saying is not -- your position is not that these games do not lead to those results, only that you have not professionally been convinced of that yet?
A That is correct.

Q You received your PhD in communications, not psychology, isn't that right?
A That is correct.
Q You received that PhD last year?
A I was awarded it the beginning of 2004, but my defense was actually in 2003. I was a visiting assistant professor for that term.
Q And in your dissertation, you conducted an experiment regarding video games that you talked about, is that correct?
A Yes.
Q That is the only experiment in the area of video games that you conducted personally?
A No, no. I am currently engaged and basically finished with a second experiment which doesn't involve aggression but which is another month-long online test. It's much more complex than the original one, and I have been involved in a series of experiments in political psychology over a couple of summers, probably about eight different experiments.
Q But is it fair to say that you have done one experiment involving video games and aggression?
A Yes, it is.
Q As I think you were describing earlier, the game that was played was called Asheron's Call 2, isn't that correct?
A That is correct.
Q You described that as a massively multiplayer online

role-playing game?
A That is correct.
Q What does that mean?
A Well, there are two parts to that very long acronym. There is the massive multiplayer part and then there is the role-playing part.
The role-playing game part would indicate what genre it is, the creation of a character, advancing that character steadily to some usually never-attained goal. The massive multiplayer would refer to the medium and the means in which it's played, that is, over the Internet, usually from a PC, but for some games also through consoles.
Q And that data that you collected playing Asheron's Call was used in your dissertation?
A Yes.
Q That was the basis for your publication in the journal called Communication Monograph?
A Correct.
Q You published that article after your submission was rejected by the Journal of Communications, isn't that right?
A That is correct.
Q And I think that you used the phrase in talking about your analysis of one Dr. Anderson's reports about this question of revising and submitting versus being tossed out. Do you recall that?

A Yes.
Q So was the "tossed out," was that, to use your term, what happened with yours regarding the Journal of Communications?
A When I initially submitted it to the Journal of Communications in an earlier form, it was outright tossed out. So we have accepted, revise it and give it back to us, or simply reject it.
On the first pass, our paper was rejected.
Q That is how you ended up with the Communication Monograph, is that right?
A Yes.
Q Then after that happened with the Journal of Communications, you, I think in your deposition, talked about how you consulted with Dr. Bushman?
A Yes.
Q Is that right?
Is that the same Dr. Bushman who is a coauthor of the meta-analysis with Dr. Anderson?
A Yes, it is.
Q And going back to your study, I just want to get a couple of things clarified.
Where did you get the players to play in your study?
A It's a challenge to find people who would be likely to play a game or would fit the demographics for people for a game but who haven't played it yet.

So I took two tacks. One was to ask current players for referrals, in other words, select the -- people that they would want to get their friends to play who had never tried it, and this would be incentive to do it. But there is a danger there of oversampling a certain type of person.

So I also made sure to recruit across a wide range of other types of demographic groups. For example, I knew that it would be very difficult to recruit women. So I tried very heavily on women's sites, several posting boards on I-Village, for example, to try to get female subjects potentially interested.

Q When you say sites, you mean the Internet. You recruited through the Internet, didn't you?

A Oh, yes. That's an online game. That is pretty standard.

Q Did you also recruit through gaming web sites?

A Yes.

Q Things of that nature?

A Yes. That is the snowball --

Q Is it fair to say that the people --

THE COURT: Hang on a second. He hadn't finished his answer, and I didn't hear the last part.

THE WITNESS: I did, in fact, recruit through gaming sites. That is the side of it where I am hoping for referrals because I can always, when I ask people if they have played the thing before, drop them from the study at that point.

But I could certainly maximize my resources by asking people to refer their friends. It turns out that when I did a test at this point that less than half of the people actually were friend referrals and the majority were on their own from other sites. I asked that specific question.

Q From other web sites?

A Correct.

Q When you use the word "site" --

A When I say "web site," I am usually talking about some kind of message posting board from some community of interest.

This lets me go and target specific kinds of groups, if I am thinking I want to balance out my sample to make it appropriate and match the actual people who had played this game, so that I have that kind of generalizability about the population because the characteristics of the population of the MMOs are known so I can try and match them. It turns out I matched them pretty well.

Q So is it fair to say that the people who you recruited had experience in playing video games?

A Some of them did, some of them didn't.

Q The ones that did likely are the ones that you found through these game playing web sites, things of that nature?

A I never did a test of that, but it is a fair hypothesis. It's only an issue if they were imbalanced in their assignments to the treatment of the control conditions, but since I use

random assignment, it's pretty safe insulation from that kind of --

Q You said that the age range was 14 to 68, is that right?

A That's correct.

Q Did you in any way segregate them during the course of the month of study, the younger players from the older players? Did you keep track of them?

A Well, they weren't playing with each other specifically at all. So I am not sure what you mean by segregate.

Q I mean, they kept a journal of how long they played, right?

A That's correct.

Q The average was 56 hours?

A That's correct.

Q Do you know if the older players were playing more or playing less, or was everybody in one?

A I haven't done the analysis --

Q So the answer is no?

THE REPORTER: Please, one at a time.

MR. KASPER: I apologize.

THE COURT: Let him finish.

THE WITNESS: No. I couldn't tell you if ours played skews younger or older or sits in the middle. I have no idea. I have not done that analysis even though I do have those data.

BY MR. KASPER:

Q And do you know what portion of the population of the study

was, say, under 18?
A I was asked this question in the deposition, and so I am going to give my best-guess answer now, like I did then, without having looked at the data.

If the real world average is 27 and the actual average in my study is 27, it is not a perfect normative balance. In other words, the Bell curve doesn't go from 14 up to 27, which would be 13 to another 13 to 40. It goes to 68. So that means it is going to skew kind of funny.

It means there's probably a clump of people who are under 27, and they are probably going to be centered around the college age, which means that some are going to be under 18 and some of them aren't.

My guess is probably a quarter are under 18 in the study, and it's just a guess.
Q And getting to the nature of the game play, you say people are playing -- it is a multiplayer game, but people are not playing together.

By that you mean that people are on the Internet playing while other people are playing the same game in the same sort of space, so to speak, is that right?
A I am not sure what you mean by not playing together, but I agree --

THE COURT: They are not in the same room, in other words.

THE WITNESS: Some are, some aren't.

THE COURT: Doesn't need to be.

THE WITNESS: It's not required. It actually is a common phenomenon for people to play with current friends, especially family members.

I think the last research I saw suggested that happens. About 20 to 30 percent of players are playing with somebody they know. So some subset of that is going to be in the same household.

But in my study that is probably less likely because of the way I did the sampling. It is not clear whether my referral test would accurately reflect existing relationships in my sample versus the real data. It's hard to answer.

BY MR. KASPER:

Q But you didn't track that, the question of whether they were in the same room or not?

A No.

Q And in your deposition, you also said that one of the things that attracted you to this game was the interactive social nature of the game?

A Yes.

Q Is that this notion where there are many people playing all at the same time?

A Yes. That is actually -- the major part of most of my research is about the social interactions in these online

spaces as opposed to just effects work.
Q And did you gather any information during the course of your study about what other games the participants were playing at the same time?
A Yes. I asked how many hours per week they were playing both pre-test and post-test.
Q Did you ask what the nature of the play was pre-test and post-test?
A I had indications of their preference for graphic violence and their preference for action in games. So that's a rough proxy of that but isn't dead on that. As I have indicated earlier, it is very hard to quantify content by self-report.
Q So what I am trying to get at is, if a player was playing a particular game 56 hours a month before they started this study and then they substituted 56 hours of your game, would you know that?
A I would have seen some drop in those scores, yes. I would have seen some kind of change in those things, I am pretty sure.
Q Well, did you ask them?
A I looked at those scores pre-test and post-test and did what we call a T-test, to test to see if they are significantly different before and after. I don't recall off the top of my head what the scores were. It's the kind of thing I would have checked for just the reason you are implying.

Q Now, the game that you chose, Asheron's Call 2, how did you come to choose that?

A Dumb luck more than theoretical significance. I had a relationship with the people at Microsoft Usability. I wanted to get a test of a game, and I was interested in social phenomena.

I actually first approached Maxis, the people that make the Sims online, because that was the game I wanted to do a test on. They weren't interested in working with me or helping me.

One of the challenges for a game researcher is what we would really like to get is data reported from inside the game world rather than asking people their opinions. It's much stronger to get unobtrusive measures than it is to ask people what they think or they do.

So I tried to cultivate a relationship with Microsoft, and we worked up a long series of potential studies that we could have done together that could have been interesting and beneficial for them. They are interested in retaining these people because they are paying a monthly subscription fee. So they have an incentive to find out why people leave the game.

My mechanism -- my method would have been the kind of thing where they could have answered those questions. But when it came time to actually talk about literally doing it and rolling it out, the lawyers for Microsoft said: No way, Jose,

there is no way we can do this. What if we wind up finding there is some kind of problem with our game? We can't be in possession of those documents and we can't work with you anymore.

And I said: Well, we have done all this work. I have to do a dissertation. What can you do for me? And they said, look, we will give you copies of the game, how many do you want, and we will just wash our hands of dealing with you.

I said -- I remember this phone call very clearly -- 400.

So that is why I have 400 in my sample.

Q So the short answer is Microsoft gave you 400 copies of the game?

A They donated it to me, that's right.

Q The cost of the game was about 50 bucks apiece?

A That is the retail value, right.

That includes -- the subscription fee per month is about -- was then about $13. So the total value for the first month is sort of 37 plus 13, and then 13 for subsequent months. So, yes, 50 bucks up front.

Q So that is $20,000?

A Yes.

Q Is it fair to say that is the lion's share of the cost of this study?

A Yes. I think my costs were $2,000 supplied by the

University of Michigan's communication department and a dissertation grant, and I think it barely covered my postage. So, yes, I couldn't have done it without their donation.

Q Did you hear Dr. Kronenberger earlier today talking about his funding or the work that he does?

A I did catch some of that, yes.

Q Did you hear him say that he puts his funding on his CV?

A I did hear him say that.

Q You don't do that, though, do you?

A Well, I have only done this one study where I had a donation, and I reported it in the article itself, which seems to be a much more important place to be transparent than on my CV because it's the thing that people read.

Q Is it --

A I don't have a problem with the transparency. They donated the stuff.

Q Was it in your dissertation?

A The donation?

Q Yes.

A I think so. It's not a published document.

Q You are aware that Microsoft is one of the members of one of the plaintiff groups in this case?

A I am.

Q All right. Now, if we could just go back to your study a little bit.

Asheron's Call 2, do you know if there were any previous studies involving that that showed that it increased aggression in the short-term?

A Asheron's Call 2?

Q Yes.

A No.

Q And if I recall the way it worked, you asked the players to keep a journal of how long they played?

A That is correct.

Q Each week?

A They were sent an actual piece of paper with a journal. Research suggests that when you give people a diary to fill it out that it's much more reliable data than if you just ask them to sort of kind of keep track and give an approximation.

There is a recall issue that is greatly aided by giving them a diary.

Q Your request was a minimum of five hours a week?

A That's right. It's a tradeoff between trying to get them to play as they normally would versus fulfilling some kind of minimum condition psychologically to be invested in the study to keep on with it.

It's a tradeoff between control and naturalism, in other words.

Q But at least one-third of them didn't play even five hours a week, isn't that right?

A I can't remember what the proportion was. Some chunk of people didn't fulfill the study's requirement and dropped out, and some people played a small number of hours, that is correct.

There was variance on the hours played. It went from five hours up to about I think 2- or 300 in some extreme cases.

Q Okay. And then I think there were 11 people that didn't play at all, reported not playing any of the game; that's being dropped?

A That sounds right.

Q But that means they actually went to the trouble of filling out the form and sending it back to you so that you knew they didn't play?

A They did the pre-test, which is what they had to do in order to get the thing mailed to them, and then I never heard from them again.

So I had their data from time one but that is it. So I dropped them because they had no stimulus.

Q So in order to get to an average of 56, if one-third are playing less than five hours a week, some people have to be really playing a lot, several hundred hours?

A That's correct. There are people out at the other end who have significant leverage on that mean, yes.

Q And did you bring that into your calculations at all?

A Well, the question about the distribution there is whether

or not it violates the assumption statistically.

You want to make sure that the data are distributed in such a way that you can perform some tests and not have others knocked out. And there are actual statistical tests to make sure that the data are in those correct formats, and I ran those tests, and they passed, and they were okay.

Q Now, with your measure of aggression, you used the verbal measure of aggression?

A I did.

Q It was a binary measure meaning yes -- a yes or no question?

A Well, I thought what you were saying with the verbal measure of aggression was actually going to be the verbal aggression subscale of the Buss and Perry scale which I used. But if you are asking me about whether or not they had arguments with a spouse or a boyfriend, girlfriend, the answer would be yes, it was a binary measure: Did you or did you not.

Q Then the next measure of aggression was did you have a fight with a friend?

A That is correct.

Q Also binary, a yes or no question?

A That's correct.

Q And when you took those measures, did you measure the severity?

A No. It's just a yes or no.

Q So did you measure the frequency?
A It's still just a yes or no.
Q So if a player had one argument in the month before the test with their spouse, and then during the month of the test or the month after the test they had 10, that would not be an increase under your study, is that right?
A That is correct. A yes or no question won't get an intensity.

And so I think, if I am understanding your implication correctly, you are wondering if there is some kind of floor or ceiling effect to be worried about with the interpretation of the data. The thing is I asked the control and the treatment groups equally, what I am interested in is the difference between the two, not in the time order in this case.
Q Right. So you weren't interested in whether or not somebody became more aggressive if they were aggressive according to that scale?
A No, I am. I am interested in that change as it compares to the change that occurred in the control group as well.

I am perfectly willing to go along with the implication that it's not an in-depth measure because it doesn't have, say, a Lichert scale range, how many times did this happen, and it smushes that variance down into yes or no, absolutely. That is why we ask multiple questions.
Q Similarly, if someone had had an argument with their spouse

during the pre-test month and then, say, had a physical assault, the second one, you would not have measured that one either?

A Well, I think they would have probably said yes both times. So it would have shown consistent real world behavioral aggression. So I think it would have captured exactly what I intended.

Q For that participant, there would be no increase in aggression reflected?

A It would be steady, that's correct, but the same would be true with a control group, and the same could work true in the opposite fashion as well. That is how these things get smoothed out and why we have large numbers of subjects.

Q What about single people?

THE COURT: Single?

BY MR. KASPER:

Q People, people who don't have a spouse or a boyfriend or a girlfriend?

A They wouldn't be captured by this.

Q So if it was impossible for them to answer the first question yes in either month, they would all likewise have no --

A That's correct. There is some subset of the population for whom this is an invalid question.

Q Did you exclude those in any way?

A No. I never asked people whether they had a boyfriend or girlfriend or spouse, but, again, it's the same in treatment versus control, which is the strength of experimental design.
Q Are you familiar with the concept of subject mortality?
A Yes.
Q What is that?
A Despite its name, it really just refers to the drop-out rate.
Q What was your drop-out rate?
A I could guess. It's a pretty good rate for the treatment condition, and it drops way down for the people in the control condition. I am going to guess it's 70s or 80s for one and 40s for probably the other.
Q And you are talking not about your drop-out rate but your retention rate, isn't that right?
A Correct.
Q So --
A Same idea. I was thinking about it inversely.
Q Right. I just want to make sure we are talking about the same thing.
A So the people in the control group dropped out at a higher rate than people in the treatment group.
Q More than half of the people in the control group dropped out?
A That's correct.

Q What implications did that have for the results of your study? Did you think that there was some difference between the control group drop-outs and the control group who stayed there, and did you do anything to work that into your findings?
A Absolutely, yes, of course.
Q What did you do?
A Well, the first thing that we do is think, well, what characteristics about someone dropping out would interact with one of my dependent variables of interest in some way. What are the things I need to worry about? Get a laundry list of every variable and see if random assignment still holds to see if at time one their scores are still equivalent.

So I have to knock out half or more than half -- I can't remember the figure -- of the people out of the control group right away, which I oversampled to do on purpose, knowing that this would happen, just not exactly knowing the extent.

I go back to their time one scores, and what I want to find out is, well, okay, let's say I have a hypothesis that the game makes people lonely. Well, I want to go to time one and find out if the people who are left after those weird drop-out rates are different on loneliness.

So we do a test called a T-test, or we test this very question on all of the main variables of interest to see if they are skewed, to see if random assignment was violated, to see if that equal starting point idea was violated.

Q So you had to do this because you ended up with more than 300 people -- or I am sorry -- more than 200 people in your -- or about 200 people in your target group and more than half of the people in the control group that dropped out, right? That was the cause in needing to do that?
A That's right. The differential mortality rate is exactly the reason to run a T-test, to safeguard oneself from the criticism that they might not have achieved random assignment and equal starting points.
That is exactly what I did, and it was okay. And if it wasn't okay, then you know to include that variable later as a control in the analysis.
Q One of the features of this online role-playing game is that you interact with other players at the same time?
A That's right.
Q So it's different from, say, a first-person shooter game where it's you against the world sort of difference?
A I wouldn't agree with that because many first-person shooters are games in which people are interacting with others as opponents and teammates, just not scale-wise to the extent, and usually it is a question of weaponry rather than interface. So I think I disagree.
Q Would you agree that it's different in that regard from the other first-person shooter game you were talking about earlier, Wolfenstein?

A Could you be more specific? Different how?
Q Different in that there is no sort of role-playing and interacting with other players as there is in the game that you used?
A Well, Wolfenstein certainly doesn't have a role-playing equivalent. So that part of it is definitely different. These are different genres. An action shooter versus a role-playing game would be apples and oranges.

The interacting with other people, I am still going to have to disagree with the premise of the question. It's just a question of extent because many first-person shooters are multiplayer, interacting with others.

Probably the most popular game in the whole world is Counterstrike and that is people in groups of 8 to 32 playing together all the time. No one plays Counterstrike alone.

The difference between, say, a game like Counterstrike and a massive multiplayer game is that instead of 8 to 32, you are grouping usually with five people but in a crowd of a thousand.
Q Okay. And what I am getting at is one of the features of these massive multiplayer games is the formation of alliances and working cooperatively with other players to achieve your goals, isn't that right?
A Absolutely.
Q And, in fact, some of the accomplishments required in your

game cannot be completed by a single player?
A That is correct. There is a strong game mechanic incentive to interact and work along with other people.
Q That is a feature of the game that may have implications for the effects on aggression, isn't it?
A Absolutely. And I think I mentioned this when I talked about the two studies I reviewed last week. I think this is very consistent with those findings.
Q Okay. I am going to move on right now to the Sherry meta-analysis that you cited before. You rely on that at least to some degree in your criticisms of Dr. Anderson's declaration, isn't that right?
A Yes.
Q And the Sherry meta-analysis, one of the features of that was the duration of game play; you talked about that?
A That is correct.
Q And the Sherry meta-analysis relied on two studies, one by a Professor Hoffman and one by two people named Ballard, B-a-l-l-a-r-d, and Weist, W, I think, i-e-s-t, is that correct?
A It's e-i actually.
Q e-i, sorry.
A That is correct.
Q You have not read the Hoffman piece, have you?
A Well, after the deposition where the Hoffman piece came up a few times, I was given a copy of it and I looked through it

so that I could be a little bit more familiar.

I have not read it through extensively. It's a dissertation, and unfortunately my time is finite.

Q Just to reflect your recollection, that is the game -- the study involving moral combat in each study in a different control game, isn't that right?

A That is correct.

Q And one of the features of it was the effect size of playing over a long period of time. You mentioned this difference between 5 minutes or 10 minutes and 75 minutes as in the Hoffman study, isn't that right?

A Yes.

Q And the Hoffman study reported an effect size of .05, is that right?

A That is how Dr. Sherry reports it.

Q Yes, and you relied on that in making your statements in this case, didn't you?

A The specific statement about the comparison between those two studies, yes.

Q And since you have not read the Hoffman study, at least not at the time of your deposition, and it doesn't seem like very carefully yet today, if the Hoffman effect side was calculated incorrectly and you and Dr. Sherry relied upon that and you in turn relied upon Dr. Sherry, that reliance would be incorrect as well, isn't that right?

A Well, I did go back and look at the section specifically of interest here. I didn't read through the whole thing, but I certainly went through and looked carefully at the sections about effect size.

And it was hard for me to draw a conclusion and figure out how Dr. Sherry calculated his number because Dr. Hoffman doesn't report it in the same way. I think Dr. Sherry had to make some kind of transformation.

I also went back and looked at Dr. Sherry's meta-analysis to look at the methodology for how he calculated those things. And based on what he says on the specific page talking about these two studies and also what he says a few pages earlier about how the average effect size is, he could have gone a couple of different ways in how he calculated that number.

So without having him here, it's hard to know if he calculated that .05 based on one measure or a few measures mean together or what. So if someone didn't know what Dr. Sherry was thinking, they could potentially come up with a different number than he did, but I have no reason to think that he did anything untoward. But if he is dead wrong, I would also be dead wrong because, yes, I am relying on his analysis.

Q And are you familiar with Dr. Anderson's work in this area?

A His meta-analysis paper?

Q Dr. Anderson's work in general, his body of work?

A Yes.
Q Do you consider him to be an expert in this field?
A Absolutely.
Q You mentioned before the GAM, or the general aggression model?
A Yes.
Q That is the model that Dr. Anderson developed, right?
A Yes.
Q Do you recognize that as a leading theory in your field?
A It depends on your definition of leading, but it's certainly a model that people are testing and using and trying.
Q Is it, in fact, the most cited theory in your literature?
A Yes.
Q You know that how?
A Because I went to the ISI web of knowledge citation index to look at the most cited papers in this area, so that I was not wasting everyone's time with talking about papers that didn't get a lot of play.

And Professor Anderson's two papers of interest were the two top most cited papers in the field.

Q And one of those was his study in 2000 with Karen Dill, is that right?
A That is correct. I believe that was the most cited paper.
Q That is the one that you were talking about earlier involving Wolfenstein and Myst?

A Correct.
Q At least in the experimental phase?
A Correct.
Q And you were critical of the choice of those games, Wolfenstein and Myst?
A I was.
Q Based on I believe either its action component or its arousal component?
A The different pre-testing scores and whether they didn't reflect the actual content of the game, correct.
Q But you don't base that criticism on any analysis that you have done or any sort of statistical research that you have done; that's just your opinion, having played the games?
A To me it's the equivalent -- I think I said this in my deposition -- of looking at the Sopranos and the Little Mermaid made and not seeing the difference. On the face of them, it's obvious enough to me that they are different and mismatched that it seemed to be a waste of time to consider doing some kind of statistical analysis.

To give you a direct answer, no, I didn't perform my own pre-test on those games.

Q And you recognized, I think later on in the study, that the second study that you have talked about by Dr. Anderson, that he has done tests to correlate the games, isn't that right?
A You are referring to the study in which he has pre-tested a

series of 10 games to look for better matching pairs? Is that what we are talking about now?

Q Yes.

A Yes, I am familiar with that study.

Q And you believe that that is a worthwhile thing to do?

A Pre-testing, absolutely. It makes a lot of sense.

Q Dr. Anderson did a pre-test with the Karen Dill study as well, didn't he?

A Yes.

Q Those two games tested out best?

A They did.

Q And your criticism of that is just based on, again, on your opinion?

A It is.

Q In paragraph 16 of your declaration, you quote Dr. Anderson as saying, quote, "Longitudinal research is badly needed;" isn't that right?

A Yes.

Q Then you go on to add your comment: "This begs the question. If the findings to date are so conclusive, why would need we long-term research." That is your sort of comment about that?

A It is.

Q And Dr. Anderson wrote that in 2001?

A He did.

Q And a lot has happened since then?
A What do you mean by a lot?
Q Well, a lot of things have transpired since 2001 in this area?
A Well, if by "a lot" you would imply that there are enough studies now to do a decent meta-analysis, I would still say no because I would toss out most of the ones prior to 2000.

If by "a lot" you mean that there has been additional research that is done that is interesting and that affects our theoretical considerations, then I say yes.

Q And a lot has happened to you since 2001?
A It's true. I got married and we had a kid.
Q You were a graphic designer in 2001, isn't that right?
A I was still doing some mild freelance work but not a lot at that point. PhD work turns out to be fairly time-intensive.
Q Now, you have been critical of researchers -- I am sorry.

Going to this question on television versus video games. You have talked a lot about the social contextual variable. What do you mean by that?
A What I mean is it probably makes a big difference if you are playing with somebody than if you are not and the way in which you are playing with somebody, the presence of other people who might have a relationship with you in the room.

I can imagine radically different effects if a child, for example, is playing with, you know, a friend who is up to

no good versus playing with their parent.

I can imagine different effects if they are playing with somebody on the same team or playing against them, again, as recent research studies seem to show.

And my recollection, again, of the early communication research is it turns out that the social variables are immensely powerful, and they explain almost everything.

So it seems like we need to put those in the model so we know exactly if there are effects, when they are happening and under what circumstances. I am as interested in finding that out as anybody.

Q And the participation or participatory variable, that is also something that differentiates television and video games in your mind?

A I think people play games together in a different way than they watch television together, yes.

Q And you mentioned before something called a mean world effect?

A Yes.

Q And do you think that is more likely from video games than from television?

A This is the cultivation finding I was talking about under the opening session, and it's more likely in this targeted sense than it is in the spreading sense.

But I am also not aware of parallel research on

television of this spreading versus more targeted application. That might be something that I might have been the first to come up with that and tested in any medium. I am not really sure.

I spoke with one of the leading figures in cultivation research about this at a conference last year, and as far as he knew, no one had tested that distinction with television literature.

So I am pretty sure it happens in games, or at least for this kind of game. It's an open question as to whether it might happen with different games. I am less sure about whether or not it would happen with television.

That is why I make the statement that it's at least more likely -- I know it is possible in one of those two media.

Q And one of the reasons that you rely on making that statement is the repetitive nature.

You were talking about one of your games, I think your game from your study, and you had used the phrase over and over and over again, people just pounding and pounding and pounding. That is a feature more likely found on video games than it is on television, right?

A I think so, for many video games, not all. I would hate to draw rash generalizations there, but certainly the kind of game I was studying, it certainly afforded that sort of test.

Some games have a lot more variety and are played with

a lot more variety. But MMO is so subject to repetitive action that many players describe the playing of the game as a grind because of the repetitive nature of the play.

But that doesn't always apply to other game titles. So I would be hesitant to go along with that.

Q Okay. But you have used the phrase apples and oranges in describing television and video games, haven't you?
A I have.
Q And do you also agree -- this gets to the difference between children and adults. Do you also agree with the statement that an adult's personality is less likely to change over the course of one month, say, with your study than a child's is?
A I do.
Q And why is that?
A I do that based on the research on television. I think that's one place when it's okay to bring back literature over because we're talking about the characteristics of the people rather than the characteristics of the media and how it's used. I'm specifically thinking of the work by Paik and Comstock, which is a meta-analysis of television violence effects work, and it shows this age-based finding.
Q Okay. And going back to the social context, it's your opinion -- or you've talked about in some of your literature and at your deposition this idea of the home becoming more and more segregated, and by that you mean children and parents are living in separate space more frequently now; isn't that right?
A Yes.
Q And the game playing is subject to that segregation; isn't that right?

A I think that's a fair implication. That's what I'm getting at is what's probably happening.
Q And what is it that you're referring to?
A That within the home we have more subdivided space, and since we know that there are so many video game players in children's bedrooms, as opposed to in common living room areas, I think it's a reasonable assumption to make the leap and say that children are probably playing video games alone in their bedrooms more than they used to. It's not directly tested. It's my best guess.
Q And it's your belief that the more parental involvement in children's video selection and play, the better, isn't it?
A Absolutely.
Q Okay. Thank you.
MR. KASPER: I have nothing further.
THE COURT: Redirect.
MR. SMITH: I have no questions, your Honor. I did neglect to move into evidence Exhibits 1 through 4.
THE COURT: Those are admitted. Hang on a second. Let me just see if I have a couple of questions.
(Brief pause.)
THE COURT: One of the questions that Mr. Kasper asked you on cross examination had to do with the difference between these multiplayer games, which require working with others, and then the games where somebody plays them by themselves, and I

think the question was might that have an effect on whether there's some sort of aggressive outcome. Okay? And you said yes, but then I didn't get -- then you started to explain, but I wanted to get a handle on what the differences and what the similarities were. Do you understand what I'm asking you about?

THE WITNESS: The ball park of whether playing with or against other people in games might affect things?

THE COURT: Yes.

THE WITNESS: I think rather than relying on my own work, which it's hard to parse that out because some of the people who played the game I studied played against each other and some didn't. Most didn't, but I haven't included that as a control. So, I just don't feel comfortable making an assessment.

But there is again this research that's coming out which suggests that when people are playing on the same team, if they're playing against other teams, they're going to be more aggressive than if they're playing against the computer as a team. And then if their teams -- if they are individuals and they're playing competitively versus collaboratively, that also explains the hostility effect. So, the social context of play within the game setting seems to have a big impact on the aggression outcomes. I think that those more recent studies are better than my own in isolating that. I think it's the

area I'd like to see more new research happen because it's such a big deal.

THE COURT: All right. Let me just check. I think that was the only thing I wanted to ask you. Let me just make sure here.

(Brief pause.)

THE COURT: That's all I have. Does anybody have any follow-up questions based on the question I asked?

MR. SMITH: No, your Honor. Thank you.

MR. KASPER: No, your Honor.

THE COURT: Thanks. You're excused.

(Witness excused.)

THE COURT: Okay. I assume that the other people are set up for tomorrow or no? Do you want to start now?

MR. KASPER: We --

THE COURT: Well, let me just -- let's just take a little interlude here. There was a question I wanted to ask you as I was thinking about this. You know, we're doing this as a preliminary injunction hearing, and I guess as I was thinking about it over lunch -- and I know I didn't bring this up before, but one of the things I guess that concerns me is why should I be doing this twice. In other words, as a preliminary injunction hearing and them some other day as a trial. And I recognize that we don't have all the witnesses available, but there are ways around that. I mean, I can

consider the affidavits. You could give me the depositions. You can give me whatever you want. But I'd like you to think about between now and tomorrow morning the question of what your positions are as to whether a decision on the preliminary injunction should be combined with the final disposition of the case, which is something that's covered by Rule 65(a)(2), I think. Maybe (a)(3), but I think it's (a)(2). So, think about that. I don't want you to react on your feet.

MR. SMITH: I appreciate the opportunity to think about it.

THE COURT: But, anyway, if you're ready to start with the next witness, I'm happy to do that now. I mean, I wouldn't want to go much more than about another 20 minutes.

MR. KASPER: Do you mind if I talk to Dr. Anderson?

THE COURT: That's fine. Go ahead and talk.

(Brief pause.)

THE COURT: As long as you think we can finish everything else tomorrow, I'm comfortable starting tomorrow morning, except perhaps the argument. In other words, if you think we would finish all the witnesses tomorrow, the remaining witnesses tomorrow, we can start tomorrow morning.

MR. KASPER: We're certainly prepared to start with Dr. Anderson. I'm happy to start.

THE COURT: Okay. Fine. Then let's go. We'll go 'til 4:15.

Please raise your right hand.

(Witness duly sworn.)

THE COURT: Please have a seat.

MR. KASPER: Your Honor, I'm going to use demonstrative exhibits. Should I just set it up over there?

THE COURT: Whatever you want to do.

CRAIG ANDERSON, PLAINTIFFS' WITNESS, SWORN

DIRECT EXAMINATION

BY MR. KASPER:

Q Dr. Anderson, would you please state your name for the record?

A Craig Allen Anderson.

Q And what do you do for a living, Dr. Anderson?

A I am a distinguished professor of psychology at Iowa State University.

Q And how long have you been at Iowa State?

A This is my seventh year at Iowa State.

Q And what did you do before that?

A I was at the University of Missouri Columbia for eleven years, and then I was at Rice University for eight years. One year of that actually was spent as a visiting faculty member at Ohio State University.

Q Okay. And, Dr. Anderson, do you have an opinion regarding the relationship between violent video games and aggression?

A Yes, I do.

Q And do you hold that opinion to a reasonable degree of scientific certainty?
A Yes, I do.
Q And what is that opinion?
A Based on all of the research and also to some extent on the much more extensive research literature on television violence, it seems clear that exposure to violent video games increases aggressive behavior, aggressive thinking, physiological arousal, aggressive feelings, and is also associated with a decrease in prosocial behavior.
Q Okay. And when you say aggression, how do you define the term aggression?
A Aggression in social psychology is defined as behavior that is intended to harm another individual, and the assumption also is that that other individual wishes to avoid that harm.
Q Okay. And then how do you define violence?
A We conceive of aggression as being along a continuum from fairly mild to very severe, and violence is thought of basically as aggression at the high end of this sort of severity dimension.
Q Okay. And how do you define aggressive cognition or aggressive thinking?
A Aggressive cognition, aggressive thinking -- we've sort of used those interchangeably -- has to do with in some sense beliefs about aggression, maybe attitudes towards aggression.

It can be what we think of as accessibility of aggressive thoughts. It to some extent is defined by the way that it gets measured.

Q Okay. And how about aggressive feelings? How do you define that?

A We define aggressive feelings as emotion involving anger or feelings of hostility, annoyance, things like that.

Q Okay. And you also used the term prosocial behavior. What do you mean by that?

A Prosocial behavior is behavior that's intended to help someone else in some way. There's various kinds of prosocial behavior.

Q Okay. And how long have you been studying aggression?

A My first publication on aggression came out in 1979, and I really concentrated, focused on doing aggression research probably since the late 1980s, early 1990s. Prior to that I was doing a lot of research on human inference and social judgment and some research on attribution, attributional style, and a few other topics.

Q How many publications have you had on aggression?

A On aggression, probably 50 or so.

Q And how many of those were peer-reviewed?

A Probably around -- somewhere in the thirties, I would guess. Somewhere around 30 maybe.

Q Have you also had publications regarding video games and

aggression?
A Yes. Somewhere around 30 publications on video game or that included discussion of video games and aggression.
Q And how many of those were peer-reviewed?
A Let me think. It was probably 20 on video games and aggression. Probably in the low 20s, not 30. I was thinking media violence. And of those 20, probably around ten or so in peer-reviewed journals.
Q Thank you.
MR. KASPER: I'm going to tender Defendants' Exhibit Number 4, which is a copy of your C.V.
THE COURT: Is this the same one that's attached to his declaration?
MR. KASPER: Yes
THE COURT: I don't need another one.
BY MR. KASPER:
Q Dr. Anderson, would you describe the general aggression model?
A Yes. A general aggression model is an integration of a number of other theories and data basically relating to the sort of development, learning, instigation, and expression of human aggression.
Q Okay. And when did you develop the model?
A We started working on that in the early 1990s. The first publication that's clearly part of that model would have come

out in the mid-1990s when we were doing mostly at that time research on temperature effects on aggression.

Q And did you do a study with Dr. Bushman regarding the general aggression model?

A We've developed -- Dr. Bushman has played an important part in a couple of publications very specifically focused on general aggression model. So has Professor Huesmann at University of Michigan.

Q I'm going to hand you a copy of what has been marked as Defendants' Exhibit Number 5. This is a copy of an article you published -- it appears in the record -- called Effects of Violent Video Games on Aggressive Behavior, Aggressive Cognition, Aggressive Affect, Physiological Arousal, and Prosocial Behavior that you published with Dr. Bushman; is that correct?

A Yes, that is correct.

MR. KASPER: And the purpose of this, your Honor, is on Page 355 of this article. The charts that Dr. Anderson is going to be relying on appear in this publication.

BY MR. KASPER:

Q Would you briefly explain your general aggression model, Dr. Anderson?

A Sure.

MR. KASPER: Your Honor, may he approach?

THE COURT: You can go down there, if you want, but

you're really going to have to struggle to keep your voice up because you're soft-spoken, and you're not in front of a microphone.

THE WITNESS: It's my allergies.

THE COURT: Okay.

THE WITNESS: Very few of my students would say I'm soft-spoken.

BY THE WITNESS:

A Okay. There are sort of two major sort of segments to the general aggression model. And, again, this is an attempt to integrate social learning theory.

BY MR. KASPER:

Q Excuse me. What is social learning theory?

A Social learning theory is a theory about how people in general, especially children, but adults, as well, learn lots of their behaviors, attitudes, beliefs, and so on by observing events around them, including watching television and so on. Al Bandura is most closely identified with that work, and that theory goes back to the 1960s, actually, some of that work.

So, again, the model is an attempt to kind of integrate the insights from social learning theory and a number of other sort of social cognitive theories in this domain, including work by Leonard Berkowitz, who is an emeritus professor at the University of Wisconsin, Ken Dodge and his work on social information processing, and Russ Geen and his

work on affect aggression.

Again, the idea was to try to pull together a number of theories that really seemed to have many of the same underlying ideas and to try to pull it together in a way that would be useful to researchers as a way of organizing lots of information and lots of theoretical thoughts.

What this figure illustrates here, this is what we call an episode, a social episode of some kind, of a social encounter. And we can start at the top where we talk about what kind of input variables we have, and we have person variables and situation variables.

By person variables we mean things that the person brings to the situation with them. So, it would be their personality traits, their attitudes, their skills, beliefs, and so on, but it would also include temporary mood states, things like that. Situation variables would include whatever is present in the situation. So, are there other people around or is this person alone, are they in a bar, are they in a church, have they been recently provoked, have they recently played a violent video game, things like that. And these variables then combine to influence a person's present internal state, which is represented by cognition, cognitive variables of one kind or another, affects, and arousal.

So, if I can get concrete, imagine a situation where a child is in a lunchroom and while carrying their lunch tray,

someone bumps into them causing them to spill their milk or juice or whatever it is they're drinking in lunchrooms these days. One way the person variables can come into play here is some children have this tendency to attribute such ambiguous kind of events to hostile intent on the part of the person that bumped them. So, there's a tendency for them to say, oh, that was done on purpose, whereas others are less likely to draw that kind of a conclusion, and this happens pretty quickly and automatically. This is not necessarily a thoughtful process.

So, anyway, that can again influence this present internal state. They may think this person did this on purpose. They may get angry as a result of that. And down here at this stage what we're talking about is a host of what we call appraisal and decision processes. I think appraisal is spelled wrong.

THE COURT: You need two "P"s. That's okay. So, you'll get graded down.

THE WITNESS: Yes.

MR. KASPER: The lawyers will note that the mistake is in the original, not in the blowup.

THE WITNESS: That's right.

THE COURT: So much for peer review.

THE WITNESS: That's right.

BY THE WITNESS:

A Okay. Some of these appraisal decision processes occur

very quickly without much awareness or thought. Some take more time and thought. The idea, though, is that as a result of these processes, at some point some kind of thoughtful action emerges or some kind of impulsive action emerges, which in turn then, of course, influences in some sense the outcome of this social encounter. But, of course, that's not the end of the story because what happens -- I mean, if a child interprets this bump as intentional and then responds aggressively in some way, then that becomes a provocation that enters into sort of the next part of this continuing interaction cycle.

So, the way that aggression or nonaggression sort of occurs here is dependent on, again, person variables, as well as what's going on in the immediate situation. And in a sense we can think of each time one of these events occurs, it is in some sense a learning trial where one can learn what are the consequences of certain kinds of actions, attitudes, beliefs, things like that.

BY MR. KASPER:

Q And will you describe the concept of priming as it relates to that?

A Yes. Priming in this context refers to the case where certain kinds of situational cues can increase the likelihood or increase the accessibility of certain kinds of thoughts or certain kinds of knowledge structures.

Not in a video context, but in a somewhat different

aggression context, there's research showing that simply seeing a photo of a gun -- a handgun, a rifle, whatever -- primes aggressive thoughts, that is, it increases the accessibility of aggressive thoughts, and that priming itself can lead to an increase in the likelihood that aggressive behavior will occur sometime fairly shortly after the prime took place.

Q Okay. And how many of these episodes that you're talking about does a person have every day?

A Well, a lot of these kind of interactions take place very, very quickly. And so, it could easily be thousands, certainly hundreds, sort of depending on how big a scale you want to draw.

Q And how does repeated exposure to media and video game violence affect long term propensity for aggression? I think that requires us to move over here.

THE COURT: Let me ask you this. If using this other chart is going to take more than a few minutes, I'd rather hold it until tomorrow morning.

MR. KASPER: This is probably a good place to stop.

THE COURT: Let's hold it until tomorrow.

MR. KASPER: Okay.

THE COURT: Okay. We'll be able to start at 9:45. So, I'll see you then.

MR. SMITH: Thank you, your Honor.

THE COURT: This is Mr. Dryjanski. She wasn't there

when we gave the names. Give your name for the record.

MR. DRYJANSKI: Andrew Dryjanski. I represent Attorney General Madigan and the Governor.

Earlier you had talked a little bit about the motions to dismiss and how you might deal with those after this. Are you --

THE COURT: No. I said as part of.

MR. DRYJANSKI: Are you going to hear --

THE COURT: Together with. I expect people to argue whatever they want to argue at the end of this.

MR. DRYJANSKI: Okay. Thank you.

(Whereupon, the within trial was adjourned to Tuesday, November 15, 2005, at 9:45 o'clock a.m.)