

1 IN THE UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF ILLINOIS
3 EASTERN DIVISION

4 ENTERTAINMENT SOFTWARE)
5 ASSOCIATION, et al.,)
6 Plaintiffs,) No. 05 C 4265
7 v.) Chicago, Illinois
8 ROD BLAGOJEVICH, et al.,) November 15, 2005
9 Defendants.) 9:45 a.m.

10 TRANSCRIPT OF PROCEEDINGS
11 BEFORE THE HONORABLE MATTHEW F. KENNELLY

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1 (The following proceedings were had in open court:)

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

3 THE COURT: Well, so much for 9:45.

4 All right, can the lawyers please give your names for
5 the record?

6 MR. SMITH: Paul Smith for the plaintiffs.

7 MS. FALLOW: Katherine Fallow for the plaintiffs.

8 MS. HARTNETT: Kathleen Hartnett for the plaintiffs

9 MR. SANDERS: David Sanders for the plaintiffs.

10 MR. KASPER: Michael Kasper for defendant Blagojevich.

11 MR. DEADY: Patrick Deady for defendant Blagojevich.

12 MR. DRYJANSKI: Andrew Dryjanski for defendants

13 Madigan and Blagojevich.

14 MR. GARCIA: And Stephen Garcia for defendant Devine.

15 THE COURT: Are we ready to resume with Professor

16 Anderson?

17 MR. KASPER: Yes, we are.

18 THE COURT: Come on right back up here and we will get
19 going.

20 Do you understand you are still under oath?

21 THE WITNESS: Yes.

22 THE COURT: Okay, you can start.

23 CRAIG ANDERSON, DEFENDANTS' WITNESS

24 PREVIOUSLY SWORN

25 CONTINUED DIRECT EXAMINATION

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1 BY MR. KASPER:

2 Q Professor Anderson, as you recall yesterday, we were
3 talking about the general aggression model before we broke, and
4 in particular we were talking about this concept of priming. I
5 was wondering if you could just begin by describing the concept
6 once again.

7 A Priming is the phenomenon in which some sort of cue in the
8 environment -- it can be a visual cue, auditory, it doesn't
9 matter -- leads to an increase in the accessibility of a
10 particular kind of thought or cognition.

11 So, for example, a photo of a gun for many people
12 automatically primes thoughts about violence.

13 Q How long does the priming effect take?

14 A There are kind of different types of priming, some of which
15 take place very, very quickly, less than a second in some
16 cases.

17 In the kind of situation that we are talking about
18 here, exposure to violent video games, it presumably would take
19 somewhat longer, somewhere on the order of maybe 5 minutes, 10
20 minutes, maybe even as long as 15 minutes or so. But it
21 certainly wouldn't take a really long time.

22 Q How does that relate to this concept of duration of play
23 that Dr. Williams was talking about yesterday?

24 A Well, what it really means is that there is no particular
25 reason to expect -- in a short-term experimental context, there

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1 is no real reason to expect that the effects of playing a
2 violent versus a nonviolent video game would get bigger over
3 time.

4 Q Why is that?

5 A Because the priming would take place and, in some sense,
6 reach maximal level fairly quickly. No one has really done the
7 studies to see exactly how long in this context is optimal.
8 But certainly 75 minutes, for example, of playing is much
9 longer than what it would be reasonable to expect that priming
10 would require.

11 Q Turning your attention to the second chart over here --

12 A Yes.

13 Q -- how does violent video game exposure affect the
14 long-term propensity for aggression?

15 A If I may?

16 THE COURT: That is fine.

17 THE WITNESS: The top part here that is labeled in
18 this version Repeated Violent Game Playing really contains an
19 awful lot of sort of history of psychological research from
20 several different domains. Social learning theory is in there,
21 cognitive psychology type processes, developmental processes,
22 and so on.

23 But basically the idea is that what one is really
24 doing is learning different kinds of knowledge structures,
25 rehearsing a particular way of thinking and decision-making,

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1 and, in addition, getting reinforced, that is rewarded, for
2 making decisions such as decisions about how to deal with
3 conflict by use of force.

4 Q So what is a knowledge structure?

5 A A knowledge structure is sort of a broad label for a
6 variety of kinds of basically variables that are thought to
7 exist internally, things like beliefs, attitudes, perceptual
8 schemata.

9 We can think of knowledge structures as ranging from
10 fairly -- what we might think as fairly simple kinds of ideas
11 such as how do you identify a chair. Well, someone has to
12 learn with experience what a chair is, how to perceive what a
13 chair is, or how does one learn how to read.

14 As Dr. Kronenberger kind of illustrated when he was
15 talking about Stroop effects, where color words are presented
16 sometimes in ink colors that don't match the words, so the word
17 "red" maybe printed in blue, and that turns out to be a
18 difficult kind of task to do because there is a conflict
19 between this automatic reading response. Well, it's automatic
20 in people who have learned how to read.

21 So this kind of a knowledge structure, in this case
22 about what a particular formation of letters and what that
23 means, happens -- takes place over time with practice and
24 eventually gets automatized.

25 Q You used the word "rehearsal" in the top box there. What

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1 types of behaviors are rehearsed in video games, in violent
2 video games?

3 A In violent video games, you rehearse really the whole
4 sequence. You rehearse, you practice being vigilant, that is,
5 looking for sources of threat. You practice identifying
6 sources of threat. You practice making decisions about how to
7 respond to that threat. And eventually you actually carry out
8 some form of action, typically a violent action to deal with
9 that threat, clicking a mouse button or something on the
10 keyboard or a pretend sort of gun of some kind.

11 Q Yesterday Dr. Williams used the term, hostile attribution
12 bias. Where does that fit into that chart?

13 A A hostile attribution bias is probably best thought of as a
14 type of fairly high level perceptual schemata, sort of a
15 propensity to see threat, see intentional harm in ambiguous
16 situations where harm may or may not have actually been
17 attendant.

18 Q And what happens as you go down further in the chart?

19 A The idea in developmental psychology, personal psychology,
20 and so on is that -- and that is why this model isn't really
21 just a model of video game playing; it is a much more general
22 model than that.

23 The idea is that with practice, these types of
24 schemata, knowledge structures and so on, essentially become
25 more chronically accessible or available for the person to use

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1 in situations that seem to fit that particular schemata.

2 Q Give me an example.

3 A Well, in terms of, like, hostile attribution bias, someone
4 who has developed this idea that when bad things happen to
5 them, it is probably caused by someone else, this idea of you
6 are looking for threat or, you know, insults or something along
7 that line.

8 What that means is that when one then gets in an
9 ambiguous situation where some kind of harm has been done, that
10 person is more likely to decide very quickly, in some cases
11 automatically, without even realizing they are making a
12 decision, but they are more likely to decide that the harm was
13 intentional.

14 And as a consequence of that, they are more likely to
15 respond, say, to that bump in the lunchroom that we talked
16 about yesterday with some kind of aggressive behavior on their
17 own.

18 Q How does that relate to the third box?

19 A Increase in aggressive personality. Basically these are
20 different ways that one's propensity to behave aggressively in
21 a variety of situations can be increased.

22 One thing I guess I should point out here is the
23 general aggression model does not specifically say that playing
24 a violent video game will influence each and every single one
25 of these. That actually is an empirical question, and there

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1 are studies showing some of these linkages in the video game
2 literature.

3 Again, the general aggression model was designed to be
4 general, not just a media violence model. But the idea, again,
5 is that these kind of rehearsals and practice and so on can
6 lead to an increase in aggressive personality, sort of loosely
7 defined, which in turn then can influence person variables and
8 actually situation variables.

9 Q What does that mean, the increase in the aggressive
10 personality regarding -- how does that relate to the bottom two
11 boxes?

12 A Well, there are lot of different ways of measuring
13 aggressive personality, but basically it's usually defined as a
14 tendency to respond more aggressively than what sort of non-
15 aggressive individuals or sort of normal individuals would
16 respond in a variety of situations.

17 Q And the two boxes down at the bottom, do they equate to the
18 top two boxes on the first chart?

19 A Yes. That is actually how one gets from all this learning
20 aspect of the model back to any particular episode is an
21 increase in aggressive personality over time.

22 Well, first of all, that is a person variable, so that
23 any situation that one goes into, they are sort of bringing
24 these now well-rehearsed knowledge structures with them. So if
25 the situation happens to be one that involves a provocation of

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1 some kind or an ambiguous provocation of some kind, it
2 increases the likelihood that the person will interpret it and
3 act on it as if it was an intentional action that requires an
4 aggressive response.

5 It is also the case that as children, for example,
6 become more aggressive, the kind of situations that they find
7 themselves in also tends to change; that is, their social
8 relationships with say, parents, or peers or teachers tend to
9 deteriorate, and so they start interacting with a -- or there
10 is a tendency for them to start hanging out more with other
11 kids who have in some sense become social rejects from the
12 classroom or wherever they are.

13 Q And you talked also in your research about the concept of
14 pro social behavior. How does that apply in this situation?

15 A It's -- that hasn't seen as much research, but there is
16 some research suggesting that if one --

17 Well, let me back up a second. The one way in which
18 exposure to violent media in general, exposure to violent video
19 games can decrease pro social behavior is through this
20 aggression desensitization box. And desensitization here
21 really refers to a decrease in negative emotional reactions to
22 violence or scenes of violence.

23 Typically when children and both adults as well see a
24 scene of violence or see someone being injured or in pain or
25 whatever, they have a fairly strong emotional reaction to it.

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1 One consequence of that is that that can lead to -- first of
2 all, a negative emotional reaction to violence can lead to a
3 decrease in aggression. So if you are actually hurting
4 someone, perhaps unintentionally, perhaps intentionally, but
5 that then produces a negative emotional reaction in you, you
6 are likely to stop it.

7 There is also evidence from some of the work Rowell
8 Huesmann has done suggesting that when children are making
9 decisions about how to behave towards some person, that
10 thinking about hurting them, hurting another person, influences
11 their decision to inhibit any sort of aggressive impulse they
12 might have.

13 Q So how does desensitization work with this concept of
14 knowledge structure?

15 A I think of this as, in some sense, a somewhat more
16 primitive kind of -- I guess one can still call it a knowledge
17 structure, but it's more based in emotion that is sort of an
18 older part of the brain.

19 And how this relates to pro social behavior, which is
20 where I got started on all this, is if you are in a situation
21 where someone needs help, one of the first things that has to
22 happen in order for you to decide to help is you have to notice
23 that they need help. And to some extent the judgment of
24 whether someone needs help or not is a judgment about how
25 whether they are in fact in pain or how severe it is whatever

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1 it is that they are suffering.

2 So if you tend to downplay that because you are not
3 desensitized to violence, then you are less likely to help.
4 That is kind of how you get to --

5 Q Thank you.

6 Doctor, have you personally conducted any experimental
7 studies measuring the relationship between violent video games
8 and aggression?

9 A Yes, I have.

10 Q Did you publish a study with Professor Karen Dill in 2000
11 which included an experimental study of this nature?

12 A Yes.

13 Q Is that the experiment that Dr. Williams talked about
14 yesterday involving the game Wolfenstein 3D and Myst?

15 A Yes, that is.

16 Q Could you explain briefly why you chose those games?

17 A Yes. We chose those two games because pre-testing
18 indicated that they were fairly similar on dimensions that are
19 important in testing theories of aggression, that they tended
20 to produce the same amount of arousal as measured by heart rate
21 and blood pressure, tended to be similar in enjoyment and
22 frustration, some of those other kinds of dimensions.

23 Q Did you find that those were the two most closely matched
24 games?

25 A Those were the two most closely matched games that we

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1 looked at in the pre-test.

2 Q Thank you.

3 Have you done any other experiments involving violent
4 video games and aggression?

5 A Yes, we have done a number of them since that time.

6 Q Have you done Professor Nicholas Carnagey's?

7 A Yes.

8 Q I hand you a copy of Exhibit Number 6, which is a copy of
9 that study, and I would ask you to take a look at it.

10 MR. KASPER: Your Honor, would you like a copy?

11 THE COURT: I thought I had one.

12 MR. KASPER: You have got that one.

13 THE COURT: I can get rid of the other one.

14 MR. KASPER: Thank you.

15 THE COURT: The rule is I always get the first one.

16 BY MR. KASPER:

17 Q Is that a copy of the study?

18 A Yes, it is.

19 Q In that study what games did you select?

20 A In the first experiment we started off with 10 different
21 games. We had two goals in that first experiment. One was to
22 test the idea, the hypothesis, that exposure to violent games
23 would increase the accessibility of aggressive cognitions,
24 aggressive thoughts, and by using multiple examples of violent
25 games and nonviolent games, you basically increase the -- your

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1 ability to generalize to a broader category of games.

2 The second goal of that study then was to try to use
3 some of the ratings data and the heart rate data and so on to
4 select two games that were again similar on theoretically
5 relevant dimensions and different in terms of violent content.

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1 Q And what were the results of that first experiment?

2 A The main result was that, in fact, exposure to one of the
3 violent games did significantly increase aggressive thoughts or
4 accessibility of aggressive thoughts. And then the other piece
5 was that we did, in fact, find two games that matched pretty
6 well on a number of dimensions, and those two games were
7 Marathon 2 and Glider Pro.

8 Q And going back to the first point, the level of aggressive
9 cognition, how did you measure aggressive cognition in that
10 study?

11 A In that study aggressive cognition was measured by a task
12 called the word completion task. In that task participants are
13 presented with a list of partially completed words. So, for
14 example, H blank T. And then their task is to go through this
15 list and as quickly as possible fill in the blanks to make
16 words, real words, out of each letter string.

17 About half of the -- I don't remember the exact number
18 now. Half of the words, roughly, could be completed with an
19 aggressive word completion or a nonaggressive completion. So,
20 H blank T could be hit, it could be hot, hat, hut.

21 Q And is the word completion a standard measure of aggression
22 in your field?

23 A It is a measure of -- the word completion task is used as a
24 measure of accessibility of different kinds of thoughts in the
25 cognitive research literature, and this version, using words

1 that can be completed with aggressive words, is a standard
2 measure of or would be considered a standard measure of
3 aggressive cognition, accessibility to aggressive cognition.

4 Q And regarding the second finding involving Marathon 2 and
5 Glider Pro, would you explain that?

6 A Well, we went through the data that we had gathered in that
7 first study in terms of cardiovascular arousal and ratings in
8 terms of things like enjoyment, how frustrating was the game,
9 things like that, and those two games seemed to match quite
10 well on those dimensions.

11 Q And you've mentioned a first experiment. Does that mean
12 there was a second experiment?

13 A Yes. The second experiment then used those two games,
14 Marathon 2 and Glider Pro, and basically measured -- you know,
15 had people play one game or another, that is, subjects randomly
16 assigned to play one game or another, and then a short time
17 afterwards were put in a version of what's called the
18 competitive reaction time task, which is frequently used to
19 measure aggressive behavior in a laboratory setting.

20 Q And how is the aggression measured?

21 A In this version of the task, participants are led to
22 believe that they're competing against another participant in
23 another room on a reaction time task, a series of reaction time
24 trials, and again in this particular version they're told that
25 there's going to be two different phases to this task.

1 In the first phase of 25 trials, if the participant
2 loses a reaction time trial -- in other words, if they respond
3 more slowly than their opponent -- I should point out there is
4 no real opponent here. This is all computer controlled. But
5 they're told if they lose to their opponent, they will receive
6 a noise blast over a set of headphones, and the noise blast
7 is -- the amount of noise blast is essentially set by the
8 opponent, that is, again, from the participant's perspective.
9 In fact, it's all set by the computer.

10 So, this goes on for 25 reaction time trials, and then
11 their roles are supposedly reversed, in which the participant
12 now sets a punishment level, essentially, for his or her
13 opponent prior to each trial, and then the opponent supposedly
14 would receive those noise blasts whenever the participant won
15 the trial or the opponent lost the trial.

16 Q And is the noise blast a standard measure of aggression
17 used in your field?

18 A Yes, the noise blast has been used quite a bit, and the
19 competitive reaction time procedure actually goes back many,
20 many years and has been used in a wide array of research
21 studies on aggression.

22 Q And what were the results of experiment two?

23 A The main result was -- well, I should back up. One of the
24 other manipulations we did in this study was we had the
25 computer vary the pattern of punishment or noise blast that the

1 participant received in those first 25 trials. In one
2 condition the noise blast pattern increased fairly
3 systematically over the course of the 25 trials. In the other
4 condition the noise blast pattern was much more ambiguous. And
5 we had found in some other research that the ambiguous -- we
6 call it the ambiguous provocation condition -- seems to produce
7 both higher levels of aggression, higher levels of noise blast
8 settings, and seems to be a more sensitive measure than the
9 increasing provocation pattern.

10 And then in terms of results, that's pretty much what
11 we found, that is, there was a significant violent video game
12 effect on noise blasts in the ambiguous provocation condition
13 and not in the increasing provocation condition.

14 Q Did you do a third experiment in that study?

15 A We did. We then did a third experiment. It differed in
16 several important ways. One was we went back to the standard,
17 the more standard version of the competitive reaction time
18 task. In the standard version, again from the subject's
19 perspective, both the participant and his or her opponent sets
20 punishment levels for each other on each trial. So, we no
21 longer have this two-phase kind of thing. So, that was one
22 change, again, and this is really the more standard version of
23 the competitive reaction time task.

24 We also used four different games in this study, two
25 violent games, two nonviolent games. We actually used some of

1 the editing software that comes with Marathon to modify the
2 game. So, we basically used mods, in the lingo of the game
3 domain. We modified Marathon 2 in several ways, the most
4 important one of which is in the original version of the game,
5 you're essentially shooting green-blooded aliens on this space
6 station. And so, we had that condition still in there, but
7 then we modified it for a second condition in which the
8 green-blooded aliens were replaced with red-blooded more
9 humanlike characters. So, again, we have two violent game
10 conditions here.

11 And then we also had two nonviolent game conditions,
12 one of which was Glider Pro, as we had used in the second
13 study. The other was another modification of the Marathon
14 game, and in this version we basically made it a nonviolent
15 version. We took out all of the people that you might be able
16 to shoot, basically removed them from the game, so there was
17 nothing to shoot, and instead turned the game into more of an
18 exploration game where you had to go from one part of the space
19 station to another part of the space station in order to find
20 oxygen containers and eventually to try to get off the ship
21 before you ran out of oxygen.

22 Q What were the results of that?

23 A The results were -- and again I should also point out we
24 only used the ambiguous provocation pattern in the second
25 study, and what we found was essentially to say that those who

1 had played a violent video game gave more or higher punishment
2 levels to their opponent than those who played one of the
3 nonviolent games.

4 Q And you've talked about using the noise blast and the word
5 completion measures of aggression. Have you used other
6 measures of aggression in your studies?

7 A Yes. I should point out that one of the things that some
8 people in the field, including Dr. Williams on occasion, kind
9 of makes -- I don't know if you want to call them verbal
10 mistakes on. When social psychologists talk about aggression,
11 they very specifically mean aggressive behavior, that is,
12 behavior intended to harm another person. So, we don't really
13 talk about word completion as a measure of aggression. It's a
14 measure of aggressive cognition. And we have used a number of
15 other different measures of aggressive cognition and aggressive
16 affect in different studies.

17 Q And the noise blast, is that a measure of aggressive
18 behavior?

19 A Yes, the noise blast is a measure of aggressive behavior.

20 Q And are you aware of Dr. Goldstein's view that many of
21 these measures of aggression are not valid?

22 A Yes, I have read some of his comments to that effect.

23 Q And do you have any response to those?

24 A Well, the simple and probably the best response is simply
25 that these are well accepted measures by the field. His views

1 have very much a minority view. These mechanics of aggression
2 have been validated in a number of different ways over the
3 last -- well, over 40 years now, I believe, the competitive
4 reaction time task has been used.

5 THE COURT: When you say validated, what do you mean?

6 THE WITNESS: There's several ways of validating such
7 measures. One way is to see whether variables that seem to
8 influence aggression in the real world also influence responses
9 to these laboratory measures.

10 So, for example, is it the case that people, whether
11 it's at sort of adolescent age or adults, who are known to be
12 highly aggressive individuals, either because they're in, for
13 example, juvenile facilities or have been diagnosed as having
14 an identified aggression kind of problem, do they tend to
15 behave more aggressively in these laboratory settings using
16 these laboratory tasks. So, that's one way of doing it. And
17 the answer is yes, they do.

18 Another way is to look at whether certain kinds of
19 situational variables that we know produce or lead to an
20 increased likelihood of aggression in the real world, do they
21 also do so with these laboratory tasks. So, does provocation
22 of some kind tend to lead to an increase in aggression on these
23 lab measures, and the answer is yes, they do.

24 Another way that such validation is done is to see
25 whether very different kinds of laboratory measures of

1 aggression themselves tend to yield the same kinds of effects,
2 and there are some nice, actually, meta-analytic studies of
3 this kind done by Norman Miller's group out at UNC that show,
4 in fact, that some of these verbal measures or some of the
5 written measures of aggression that have been used in electric
6 shocks, noise blasts, things like that, do tend to yield the
7 same kinds of effects, actually to a great extent.

8 BY MR. KASPER:

9 Q And did you understand Dr. Williams' testimony yesterday
10 that he agreed with you regarding the acceptability of these
11 measures of aggression?

12 A Yes. I mean, my understanding is that he basically takes a
13 pretty mainstream view that these are well validated and widely
14 accepted measures.

15 Q Okay. Now I want to talk to you about the question of
16 controlling. When you say to control something in an
17 experiment, what do you mean by that?

18 A A couple ways of controlling for a variable that you, in
19 essence, either want to equate entirely or at least
20 statistically control for it. So, for example, in terms of
21 arousal, which has been talked a lot about, if one is
22 interested in testing the hypothesis that violent video games
23 can increase aggressive behavior by increasing aggressive
24 cognition, then under those circumstances you would want to
25 control for arousal because under some circumstances heightened

1 arousal can lead to increases in aggressive behavior.

2 I should also point out, though, if, in fact, one has
3 a different hypothesis that one wants to test -- and my
4 research group hasn't done this because we're not as interested
5 in it for theoretical reasons, but one could also ask whether
6 or not arousal, say produced by a violent video game or
7 produced by a nonviolent video game, for that matter, can
8 arousal produced by any kind of a game increase aggressive
9 behavior, and in that case you wouldn't want to control
10 arousal, but, in fact, you'd want to control other factors such
11 as possibly aggressive thinking.

12 Q So, why do you control for arousal specifically in the
13 violent video game area?

14 A My colleagues and I have been primarily interested in what
15 we call the cognitive route to aggression, mainly because of an
16 assumption on our part that the cognitive route is the one
17 that's most likely to have long lasting effects with repeated
18 exposure, that is, the cognitive route is the one where we
19 would expect learning type effects, development of particular
20 kinds of knowledge structures, and so on.

21 For the most part, we tend to think that arousal
22 produced by playing a violent video game is likely to dissipate
23 relatively quickly after one ceases playing the game,
24 relatively quickly meaning within a half hour or so, and we
25 don't think that there's going to be a big in some sense

1 learning piece having to do with arousal.

2 I should point out, however, there are some medical
3 people who are a little bit concerned about the arousal aspect,
4 but that's outside my area of expertise.

5 Q And do you also control for something called trait
6 hostility and, if so, why?

7 A In a number of these studies, we have also measured trait
8 hostility, or trait aggressiveness sometimes is the label that
9 gets used, and we do that for a couple of reasons. One is to
10 be able to control for -- because we know that trait
11 aggressiveness is, in fact, related to aggressive behavior. I
12 mean, in some sense that's why it's called trait
13 aggressiveness, and we know that that's related to aggressive
14 behavior very often, at least, in laboratory studies. So,
15 that's kind of one reason.

16 Another reason is to give you the ability to see
17 whether or not the experimental manipulations, for example, of
18 playing a violent or nonviolent video game, whether that
19 violent video game effect is the same for people who score low
20 on trait aggressiveness as it is for those who score high on
21 trait aggressiveness, or is one sort of end of that continuum
22 in some sense more susceptible to these kinds of effects.

23 Q Dr. Anderson, have you reviewed the other experimental
24 research by other people in this field?

25 A Yes. There are a number of experimental studies done by a

1 variety of people. Eric Ullman at Yale has done a study in
2 which he looked at what I would call aggressive cognitions as a
3 result of playing a violent or nonviolent video game and found
4 an increase.

5 Q And are the results generally consistent with --

6 A The results are generally consistent across these studies.

7 Q Okay. Thank you.

8 And moving on to this notion of correlational studies,
9 what's the value of a correlational study that Dr. Williams
10 talked about yesterday?

11 A That's a good question, and the answer is perhaps a little
12 more complicated than what Dr. Williams indicated. I mean, he
13 was right to a large degree, but not quite complete.

14 One of the things that's very important in any science
15 is the development and testing of theoretical models of
16 whatever it is the underlying phenomenon is. The value of
17 theoretical knowledge -- well, in fact, one of the often
18 considered founding fathers of social psychology, a guy named
19 Kurt Lewin, put it very succinctly when he said there's nothing
20 so practical as a good theory, and by a good theory he means
21 one that has been tested, revised, you know, is consistent with
22 data.

23 And theories are basically causal in nature, and the
24 reason they're so practical or useful is because they give you
25 ideas about how to change things in some way in the environment

1 that might produce a desired change in whatever problem that
2 you're looking at. And a good theory also tells you or at
3 least gives you a fairly good idea of what kinds of proposed
4 change programs are unlikely to work.

5 So, for example, we know that Head Start programs
6 work, and the founding of Head Start programs was based on an
7 awful lot of research by a lot of people, and we know that they
8 work. We know that midnight basketball programs to reduce
9 violent crime in the inner city don't really work, and we could
10 have known that had people looked at the research before.
11 Again, theoretical models about aggression and crime and so on.

12 So, what I'm getting at is then what we're really
13 interested in doing is testing theoretical models and
14 developing them, and correlational studies play an integral
15 role in that, and they play an integral role in several ways.
16 One, they allow you to see whether or not your predictor
17 variables, the variables you think are causal, actually relate
18 to real world measures of aggression, things that you cannot do
19 in the lab. Obviously, we cannot run laboratory studies where
20 people actually get into fist fights, but we can use
21 correlational studies and measure such in more extreme types of
22 aggressive behavior.

23 Correlational studies also provide the opportunity for
24 a theory to be falsified, and that's very important because if
25 a theory is not falsifiable, it isn't a scientific theory, and,

1 in fact, that is to some extent the crux of some of the debate
2 involving intelligent design and teaching intelligent design in
3 biology classrooms.

4 THE COURT: What do you mean by falsified, can it be
5 falsified? What does that mean?

6 THE WITNESS: To be falsifiable means that you can, in
7 fact, gather data that show that the theory or some aspect of
8 the theory is incorrect. So, in this context if, in fact, we
9 ran a bunch of correlational studies looking at violent video
10 game exposure and some other kind of measure of aggression, if
11 those correlational studies tended to find no relationship,
12 then that would suggest either that there's something wrong
13 with the theory or that there's something wrong with one's
14 measures, and, of course, one typically -- you know, in the
15 early stages of a research program, you're never sure which is
16 which. So, that's what falsifiability has to do with.

17 BY MR. KASPER:

18 Q And Dr. Williams indicated yesterday that correlational
19 studies cannot prove causation. What do you have to say in
20 response to that?

21 A Well, first of all, we don't in science circles typically
22 talk about proving unless we're writing for a more general
23 audience, but, you know, sometimes that word slips out in --
24 actually, in all of our writings from time to time.

25 It's certainly the case that no single study -- and

1 this is true whether an experiment or a correlational study --
2 can definitively answer questions about big phenomenon, complex
3 phenomenon. But one of the other things that correlational
4 studies can do for you is that they allow you to test plausible
5 alternative explanations. And as you might recall from
6 Dr. Williams' presentation yesterday, that actually is one of
7 the criteria that he wanted to talk about as being important,
8 an important function of research, and establishing causality
9 is can you rule out plausible alternative explanations.

10 So, for example, in the video game violence domain,
11 one plausible alternative explanation for the observed
12 correlation between violent video game exposure and aggression
13 is that kids who play or people who play a lot of violent video
14 games also just in general are spending a lot of time in front
15 of a screen, whether it's a television screen or a computer
16 screen, and that time spent in front of a screen reduces one's
17 opportunities to learn social skills in that over time that can
18 lead to more aggression problems in the real world.

19 But one can test that alternative explanation by
20 measuring something like total screen time and measuring video
21 game violence exposure and measuring aggressive behavior and
22 see whether the correlation between violent video game exposure
23 and aggression disappears when you statistically control for
24 total screen time.

25

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1 Q Have you been involved in any correlational studies
2 yourself?

3 A Yes, we have done a number of correlational studies.

4 Q Did you do one with Karen Dill in 2000?

5 A Yes, we did.

6 Q What measure of aggression did you use in that study?

7 A We had several, but one of -- the main one was a measure of
8 basically delinquency taken from the criminology literature.
9 We took items from what is called the National Youth Survey and
10 selected items that had an aggressive component to it.

11 The National Youth Survey is a big, big scale that
12 includes items about drug use and all sorts of other kinds of
13 things. We took 10 items from that scale that had an
14 aggressive component to them.

15 Q What were your findings?

16 A What we found was that -- we found that participants who
17 reported higher level --

18 Basically we found a strong positive correlation
19 between violent video game exposure and aggressive behavior on
20 this measure.

21 Q Have you reviewed the other research in the correlational
22 area, in this area as well?

23 A Yes. There are a number of correlational studies done,
24 again, by a number of research teams.

25 Q I am going to hand you what has been marked as Exhibit

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1 Number 7, which is an article by Doug Gentile. Do you
2 recognize this article, Doctor?

3 A Yes, I do.

4 Q In particular, I would like to direct your attention to
5 page 146 of that study chart --

6 A Yes.

7 Q -- entitled "Playing Violent Video Games Makes a
8 Difference."

9 Can you explain that chart?

10 A Yes. This is a study that Doug Gentile ran, and I believe
11 it's the one that was published in 2004, I believe, but we
12 reproduced this one figure in this book chapter.

13 Basically what happened in this study was a number of
14 measures. This was a correlational study, a cross-sectional
15 correlational study, in which we -- I shouldn't say "we"
16 because I wasn't involved in this study -- in which Dr. Gentile
17 and his associates measured violent video game play; that is,
18 exposure to violent video games and a measure of trait
19 hostility or, again, sort of trait aggression and also measured
20 whether or not these students had been in a fight, I believe it
21 was in like the last six months or the last year. I don't
22 remember specifically.

23 Q What were the findings there?

24 A The basic findings were that for both low hostility
25 individuals and high hostility individuals, the likelihood of

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1 being in a physical fight was much higher if one scored high on
2 this measure of violent video game exposure.

3 Q Thank you. Are you familiar with the concept of
4 longitudinal study, and what do longitudinal studies help
5 resolve?

6 A Longitudinal studies are useful in -- basically you can
7 sort of think of them as the third leg of a three-legged stool
8 with experimental studies and correlational studies being the
9 other two.

10 The longitudinal studies allow you to see whether or
11 not a variable measured at one point in time can predict
12 another variable measured at a later point in time while
13 controlling for a number of other factors.

14 In other words, it's another way of looking at
15 alternative explanations. It allows somewhat stronger causal
16 conclusions than their typical correlational study.

17 Q Are you aware of any longitudinal studies in the area of
18 video games?

19 A At this point, as far as I know of, there are three, two of
20 which are not terribly clear for methodological reasons.

21 One was done by Slater. I believe it came out in
22 about 2003. In that study they measured exposure to violent
23 video games and violent television and violent movies and kind
24 of lumped it all together. And they did find that media
25 violence over the course of that study, media violence at time

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1 one did predict aggression at time two even after controlling
2 for sort of aggressiveness in time one and controlling for some
3 other factors as well.

4 But it is not -- it's not clean in the sense that the
5 video game measure -- there wasn't a -- video games were lumped
6 together with t.v. violence exposure as well.

7 A second longitudinal study that I know about was done
8 in Japan by a group of people. The first author's name, I
9 believe, was Ithori. I think it's I-h-o-r-i.

10 And in their study they focused on video games, but
11 they did not distinguish between violent -- you know, exposure
12 to violent video games versus sort of exposure to video games
13 in general. They just had sort of the more general measure.

14 We know from other studies that that kind of a measure
15 is not as good a predictor of aggressive behavior as a more
16 pure measure of violent video game exposure. Again, they found
17 a small but significant longitudinal effect.

18 Q Okay.

19 THE COURT: You said there were three. What is the
20 third one?

21 THE WITNESS: The third one is a currently unpublished
22 study that Doug Gentile and his colleagues ran. It is going to
23 appear eventually in a book. We just recently signed a
24 contract with Oxford University Press to have this published.
25 There is actually a couple other studies in that, what will be

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1 that book.

2 That was a study of third-, fourth- and fifth-graders.

3 THE COURT: That was the one that was mentioned.

4 THE WITNESS: This was the one that Dr. Williams

5 discussed.

6 THE COURT: Thanks.

7 BY MR. KASPER:

8 Q Getting to that, the one involving the third-, fourth- and
9 fifth-graders, Dr. Williams claimed that third-, fourth- and
10 fifth-graders would not be able to accurately complete the
11 self-report test regarding the level of violence in video
12 games.

13 What do you have to say in response to that?

14 A Well, I suspect that he has not run third-, fourth- and
15 fifth-graders in research. In fact, you can, and Dr. Gentile
16 did so successfully and was able to get usable measures.

17 Q His next criticism involved the reliability factor. What
18 is that?

19 A Typically when you construct a scale, let's say a scale
20 designed to measure a trait like trait aggression, you create a
21 number of statements, a number of items, each of which is
22 designed to measure this underlying trait.

23 THE COURT: Pardon me. That's starting to get
24 annoying.

25 (Brief interruption.)

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1 THE COURT: Go ahead.

2 THE WITNESS: Typically you get a more accurate
3 measure of whatever it is you are measuring, say, trait
4 aggression, if you have more items.

5 Now, there are limits to that. I mean, at some point
6 the items get so redundant that you don't need more.

7 The concept of reliability, he is actually referring
8 to a statistical concept called coefficient alpha. And
9 basically what coefficient alpha is is if you took each item
10 from a scale and correlated it with the average of the other
11 items on the scale and then did that repeatedly and then
12 averaged those correlations, that is essentially -- it is not
13 quite mathematically what happens, but that is essentially --
14 conceptually that is what coefficient alpha is.

15 The idea is that if, in fact, all these items are
16 measuring the same thing, that number should be relatively
17 higher, or at least you hope that it will be relatively high.

18 Q The reliability factor is point .68 according to
19 Dr. Williams?

20 A On the video game violence exposure measure, the
21 reliability estimate was .68.

22 Q Is that an acceptable reliability factor?

23 A That is, in fact, considered acceptable. You will see
24 publications with that in top journals. It would be nice if it
25 was bigger but --

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1 Q What is the impact of a lower reliability?

2 A The impact of having a lower reliability scale is that in
3 order to find a true underlying correlation with something
4 else, you have to have a bigger sample size. And the reason
5 for that is basically when the internal reliability or the
6 coefficient alpha, as it goes down, you tend to get smaller and
7 smaller effect sizes.

8 Q Dr. Williams' next criticism of that study was he used the
9 phrase that he looked at video games writ large rather than a
10 single game.

11 What do you say in response to that?

12 A I am not sure what that means. I mean, generally speaking,
13 the more versions of whatever kind of stimulus you are looking
14 at gets sampled, the general feeling is the more you can
15 generalize to other domains or other sort of stimulus samples.

16 And in a longitudinal study, of course you are going
17 to be looking at whatever games kids play. It's not an
18 experimental study where you, as a researcher, control that.
19 So I don't see that as a criticism. I don't understand.

20 Q Then he went on to talk about the percentage of variance,
21 the 1, 2 and the 3.6 percentage of variance.

22 Could you briefly explain that?

23 A Yes. Well, in fact, you can translate those into something
24 that looks like effect sizes.

25 Q So, for example, the 3.6, which I believe was the measure

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1 of physical aggression, could you translate that?

2 A Yes. That is roughly the same as an effect size in
3 correlation terms of .19.

4 Q What type of effect size is that?

5 A That effect size is as big as most factors that have been
6 identified as being risk factors for aggression in adolescents
7 and youth. So that is actually bigger than the effect size
8 reported at least in one surgeon general's report.

9 That is bigger than the effect size reported for
10 things like having abusive parents, coming from a broken home,
11 things like that.

12 The only one in that particular list, the only risk
13 factor that was identified as being a lot bigger was gang
14 membership. So it is a sizable effect.

15 Q I am going to hand you what has been marked as Defendants'
16 Exhibit Number 8 and ask if you could tell me if you recognize
17 this. This is another one of the studies.

18 Can you tell us what that is?

19 THE COURT: I tell you what, before we get into this,
20 let's take a 10-minute break at this point.

21 (Brief recess.)

22 THE COURT: Go ahead.

23 BY MR. KASPER:

24 Q Dr. Anderson, we had just left off with Exhibit Number 8.
25 Would you turn your attention to page 235 of that exhibit,

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1 please?

2 A Yes.

3 Q Do you see that chart?

4 A Yes, I do.

5 Q Would you please explain that?

6 A Yes. This is an illustration of --

7 THE COURT: First of all, what is this? This is a
8 chapter from what book?

9 THE WITNESS: It's a book that has not yet appeared.

10 THE COURT: That is what I was trying to figure out.
11 It is about to be published.

12 THE WITNESS: It's about to be published.

13 THE COURT: Go ahead.

14 THE WITNESS: That is what they tell us, any day.

15 THE COURT: 235 was the page?

16 MR. KASPER: Yes, page 235, your Honor.

17 BY MR. KASPER:

18 Q Would you please explain that chart, Dr. Anderson?

19 A Yes. This chart illustrates from this longitudinal study
20 the effect of violent video game exposure on likelihood of
21 being in a fight as measured at time two, controlling for
22 whether or not people were in a fight at time -- had been in a
23 fight as measured at time one, controlling for -- the HA refers
24 to hostile attribution bias -- and controlling for whether they
25 are male or female.

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1 What we see, for example, the white bar -- the two
2 white bars -- one that is labeled 18 percent, the other is
3 labeled 36 percent -- shows that, again, controlling for these
4 other -- or actually, for low hostile attribution bias, females
5 who did not report being in a fight at time one. The
6 likelihood of reporting a fight at time two was higher for
7 those who reported playing a lot of violent video games.

8 You can see that there is an increase for each of the
9 four separate groups in that figure.

10 Q Thank you. Moving on to the area --

11 THE COURT: Pause. Hang on. I just want to make sure
12 I am absorbing this here.

13 So what you are doing here -- I am looking at this
14 same chart. If you look at the column that is to the left or
15 the graph column that is to the left in both sets, on the
16 left-hand side what that basically says is that 18 percent of
17 the females who had not previously been in a fight and had a
18 low HA, hostile attribution bias --

19 THE WITNESS: Right.

20 THE COURT: And that's the thing about assuming
21 somebody is bumping into you and did it on purpose.

22 THE WITNESS: Right.

23 THE COURT: 18 percent of them were in a fight
24 later --

25 THE WITNESS: Yes.

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1 THE COURT: -- as compared to 36 percent of the people
2 in that same category where the only difference was that they
3 had a high violent video game exposure?

4 THE WITNESS: Right.

5 I should point out now, you see in the figures this
6 predicted likelihood. It is predicted from the statistical
7 model. So, in other words, the statistical model that found
8 significant violent video game effects --

9 THE COURT: I see. In other words, we are not talking
10 about somebody saying, "okay, I was never in a fight before,
11 then I played all these all violent video games and then I was
12 in a fight;" you're taking a statistical model that comes from
13 other studies and trying --

14 THE WITNESS: No, no, a statistical model from these
15 data.

16 THE COURT: From the data.

17 THE WITNESS: In the model. Basically the regression
18 model would have sex in the model. It would have all these
19 other things.

20 THE COURT: Right.

21 THE WITNESS: And that is a common way of trying to
22 illustrate fairly complicated findings.

23 THE COURT: Okay. All right, thanks.

24 BY MR. KASPER:

25 Q Moving on, Dr. Anderson, to the meta-analysis area, have

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1 you ever done a meta-analysis involving video games?

2 A Yes, I have.

3 Q And when did you do your first meta-analysis?

4 A The first one was published in 2001 with Brad Bushman, who
5 is now at the University of Michigan.

6 Q Again, Dr. Williams talked about this briefly, but can you
7 just very briefly describe the meta-analysis?

8 A Yes. Basically meta-analysis is a set of statistical
9 procedures used to combine the results of studies of, let's
10 say, the same hypothesis, so that you can get an overall view
11 of what does this research literature in general tend to show
12 us.

13 Q What were the results of your 2001 meta-analysis?

14 A The 2001 meta-analysis found that exposure to violent video
15 games was associated with increases in aggressive behavior,
16 aggressive thinking or cognitions, aggressive affect and
17 physiological arousal and was also associated with a decrease
18 in pro social behavior.

19 Q Have you done any other meta-analyses?

20 A Yes.

21 Q When was the next one?

22 A The next one would have been published in 2003.

23 Q What was the difference between the second one and the
24 first one?

25 A One of the things in the 2003 meta-analysis that we did --

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1 Well, first of all, there were a few more studies
2 added because a few more studies had come out. And, in
3 addition, we did a separate breakdown of studies that used
4 participants, I believe it was 18-years-old or younger.

5 Q What was your finding in the 2003 meta-analysis?

6 A As I recall, we had essentially the same findings. If I
7 remember right, there weren't enough studies of physiological
8 arousal that had used younger populations.

9 But the other four effects were essentially the same
10 as in the 2001 meta-analysis.

11 Q Have you done any other meta-analyses?

12 A We have in 2004 published an updated meta-analysis.

13 Q What was the difference between the 2004 and the 2003
14 version?

15 A One of the key differences is that we went in and
16 identified what we call best practices or violations of best
17 practices in this area and then calculated average effect
18 sizes, basically meta-analysis, for studies that are considered
19 best practices studies versus those that had at least one of
20 these kind of not best practices features.

21 Q What are some of the best practices?

22 A One of the best practices features involves, particularly
23 like in correlational studies, using a measure of time spent
24 playing any kind of video game as a predictor variable instead
25 of something that more specifically focused on video game

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1 violence exposure.

2 Q What were the results of that meta-analysis?

3 A The results were essentially that, when you combine all the
4 studies, that you get significant effects, the same five
5 significant effects, but that those effect sizes are somewhat
6 larger in the best practices studies than they are in the not
7 best practices studies.

8 Q Yesterday we heard a lot about Dr. Williams' study. Are
9 you familiar with his study?

10 A Yes, I am.

11 Q What were his findings?

12 A His basic finding was no appreciable change in arguments
13 over the course of this -- over this one-month study as a
14 function of playing what was Asheron's Call 2.

15 Q Were you surprised by those findings?

16 A No, not at all, not once I read the methodology.

17 Q Why not?

18 A There are a number of problems with that study, one of
19 which is the age, you know, the average age of 27. You know,
20 would you really expect major changes in personality
21 essentially involving fights and whatnot to occur after playing
22 a violent game for one month?

23 Another problem is all of these participants, or at
24 least it looked like all of these participants, certainly a
25 huge portion of them, are very experienced computer users and

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1 gamers. I mean, they were recruited to a great extent from
2 gaming sites.

3 The control group was not given a nonviolent game to
4 play, and as a consequence, we don't know whether or not those
5 in the Asheron's Call condition, we don't know whether they
6 actually spent more hours playing a violent game during that
7 one-month period than how much time they normally spent playing
8 violent games, say, in the month prior or whether they spent
9 more time playing violent games during that one-month period
10 than participants in the control condition spent on playing
11 maybe even more violent games because we don't really know what
12 they did.

13 So we don't know whether or not -- I mean, the real
14 advantage of an experimental manipulation typically is that you
15 have control over the independent variable. You know what your
16 subjects are getting in terms of violent video game exposure.
17 We don't know what they got here.

18 Furthermore, in the Asheron's Call condition, we had
19 something like 30 some percent played fewer than five hours a
20 week. Actually there was a group that didn't play at all and
21 were dropped from the study. One apparently played almost as
22 much as 300 hours.

23 Again, the advantage of experimental control kind of
24 disappeared.

25 Q What was the measure of aggression that Dr. Williams --

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1 A Well, actually let me --

2 There is one more big problem I want to mention and it
3 was discussed a little bit in Dr. Williams' testimony, but the
4 subject attrition rate was huge. Something like almost 60
5 percent, at least in terms of the dissertation, dropped out of
6 the control condition.

7 I believe he reported something on the order of 25 or
8 30 percent, in the paper itself, or the article itself, dropped
9 out, and a big portion dropped out of the treatment condition.

10 Q Why is that a problem?

11 A That is a problem in that --

12 Again, the reason you do random assignment is to,
13 using sort of law as a probability, create groups that are
14 likely to be equivalent on average on all kinds of dimensions
15 that you have not measured.

16 But once you start allowing a large portion of people
17 who are randomly assigned to one condition or another, you no
18 longer have a true experimental study. You don't know that the
19 people who dropped out of one condition are the same kinds of
20 people than the people who dropped out of another condition.

21 Now, he did a good job in trying to do T-tests on
22 those things that he had measured, and that is very
23 commendable, but the problem is there are things that you have
24 not measured.

25 Q What about the measure of aggression?

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1 A The measure of aggression is suspect in a couple of ways.
2 One is that measurement of argument is essentially a measure of
3 verbal aggression. At least that is how it would usually be
4 coded in the research literature.

5 And video games typically, for the most part, are
6 modeling physical aggression. And as we have seen in some of
7 the correlational studies, violent video game exposure tends to
8 correlate better with measures of physical aggression than with
9 measures of verbal aggression. So the measure itself is a
10 little bit strange.

11 Using whether or not you had a fight in the last month
12 creates somewhat of a problem, not insurmountable, in some
13 ways, but basically people who had reported that they had been
14 in an argument at time one could not show an increase in
15 aggression across time no matter what. I mean, the most they
16 could do at time two was show that they had another argument.

17 Similarly, we know one of the other measures, argument
18 with a spouse, boyfriend, whatever, but we don't know what
19 portion of the subjects didn't have a spouse, boyfriend,
20 significant other, girlfriend, I mean, whatever the measure
21 was.

22 I guess I would also like to point out that this
23 argument, this whole bit about reliability of measures, you can
24 -- in this dissertation, you essentially have two measures of
25 aggression, and this was arguments with friends, arguments with

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1 boyfriend and girlfriend, whatever. Those two measures
2 themselves, as reported in the article, only correlated with
3 each other .22.

4 So if you were to think about that in terms of a
5 scale, that reliability -- I mean, that is essentially a
6 reliability estimate -- is considerably lower than what
7 Dr. Williams was saying was minimal for using a scale.

8 Q And another thing Dr. Williams relied upon talking about
9 these mathematics is the meta-analysis by Dr. Sherry.

10 Could you tell us about that meta-analysis and in
11 particular with relation to the Hoffman and Ballard studies
12 that Dr. Williams talked about?

13 A Yes. One of the things that Sherry reported and
14 Dr. Williams also talked about to some extent was this idea
15 that, in experimental studies, there seemed to be a negative
16 relationship between amount of time spent playing a game and
17 effect size on some measure of aggression or aggression-related
18 variables. And, in particular, they talked about -- focused on
19 two studies. One was a Hoffman dissertation, the other was, I
20 believe, Ballard and Weist, or Weist, W-e-i-s-t, I believe,
21 both of which used mortal combat as the violent video game.

22 Hoffman had the participants play for 75 minutes, I
23 believe, and, according to Sherry, reported an effect size of
24 something like .05 whereas Ballard had participants play I
25 believe it was 10 minutes or so and reported a much larger

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1 effect size.

2 Now, both those studies also used I believe it was the
3 Buss Durke hostility inventory as their measure. But if you go
4 back to the original Hoffman dissertation, it turns out that
5 Hoffman had 64 total participants, but half of those
6 participants were observers; that is, they did not actually
7 play a video game. But the effect size that Sherry reports
8 reports using all 64. And what we really want to look at is
9 those participants who played the game.

10 And so we went back, or I went back -- and actually I
11 didn't go back. I mean, I did this when we did the original
12 meta-analysis and estimated effect sizes or the effect size
13 using players and just using the Buss Durke hostility
14 inventory. It is not clear what Sherry used.

15 Q When you say you went back, do you mean you went back in
16 2001? In 2001 you are talking about with your Bushman
17 meta-analysis?

18 A I believe that was when, yes.

19 And the effect size that we came up with -- again,
20 there's a couple ways of doing that, but the effect size on
21 Buss Durke inventory was somewhere around .28 to about .36,
22 much bigger and within the normal range than one would expect
23 here.

24 Then there is a third real problem with comparing
25 these two studies and perhaps is maybe the biggest problem of

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1 all is that, again, these are experimental studies, subjects
2 randomly assigned to play a violent game or a nonviolent game.
3 So the effect size depends not only on the characteristics of
4 the violent game, but also on the characteristics of the
5 nonviolent game.

6 They used two very different nonviolent games. The
7 game that Hoffman used, Sonic 2, actually has some aggressive
8 behavior in it whereas the game that Ballard and Weist used was
9 a game call Corner Pocket that is basically a billiards game.
10 So the studies really aren't comparable at all.

11 And, realistically, if you really want to know what
12 the time course is, what are the time effects, the way to do it
13 is not by comparing studies in some kind of meta-analysis that
14 way because the methods are different, the subject populations
15 are different and so on; the right way to do that is to do a
16 study where you randomly assign people to play either a violent
17 or nonviolent game, and then you have some of them randomly
18 assigned to play the game for 10 minutes and some for 20 and
19 some for 30 and so on.

20 Q Okay.

21 A That study hasn't been done.

22 Q Dr. Anderson, in your opinion, are there characteristics of
23 violent video games that differentiate them from television?

24 A Yes, there are, and actually Dr. Williams, I believe,
25 talked a little bit about them.

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1 One of the big differences is that in a violent video
2 game, you have to identify with the violent -- with one of the
3 violent characters; that is, the character that you control.
4 You in some sense become that character. And that is a little
5 bit different from what happens when watching a t.v. show, not
6 to say that people don't identify with characters, but they
7 don't have to. They don't become that person.

8 Q Do you rely on any research in making that study?

9 A Pardon?

10 Q Do you rely on any research or any authority in making that
11 statement about the identification?

12 A There is research showing that, in the television violence
13 literature, that children who identify more strongly with
14 aggressive characters tend to show bigger effects of television
15 violence across time.

16 Q Are there any other characteristics of video games?

17 A One is, in a video game, as an active participant as
18 opposed to a passive participant.

19 Q What do you mean by that?

20 A By that you basically are determining the course of the
21 game. Again, this gets back to you're looking for threats and
22 deciding how to deal with them and deciding how to accomplish
23 whatever goals you have in the game.

24 Q Are there any others?

25 A You also get to, or have to, rehearse sort of the entire

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1 aggression sequence.

2 Q What do you mean by that, the entire aggression sequence?

3 A That goes back to this idea that you are perceptually sort
4 of looking for sources of threat or enemies and making
5 decisions about how to deal with it and then actually carrying
6 out that action.

7 Q How does that relate to this chart here?

8 A In a sense what you are really doing is sort of a virtual
9 social encounter. You are practicing all the pieces in the
10 computer world, but you're practicing social behaviors or anti-
11 social behaviors and the decision processes and so on that go
12 along with it.

13 Q Dr. Anderson, would you please summarize your professional
14 opinion on the effects of violent video game exposure on
15 aggression?

16 A Yes. Based on all the research literature, based on other
17 theories and data involving personality, cognitive development,
18 and so on, it is my opinion that in fact -- and based on the
19 t.v. movie violence literature as well, that exposure to
20 violent video games increases aggression, increases aggressive
21 thoughts, increases aggressive affect. I am less concerned
22 about increases in physiological arousal, but in terms of the
23 pieces that matter to this case, those are my conclusions.

24 Q You have used the term "effect size" throughout your
25 testimony. In terms of the effect size of video game violence

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1 exposure on aggression, how does that translate into sort of
2 the real world for comparison?

3 A You know, that is always a difficult question. We do know
4 that the effect size is bigger in the media violence literature
5 in general, as well as what has come out of the meta-analyses
6 on video game effects, that the effect sizes are bigger than,
7 for instance, the effect of asbestos exposure on larynx cancer.
8 It's bigger than the effect of second-hand tobacco smoke in the
9 workplace on cancer. It's smaller than the effect of tobacco
10 smoking on lung cancer.

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1 Q Thank you. Have you reviewed the findings of the
2 legislation at issue in this case?

3 A Yes, I have.

4 Q And in your opinion are those findings supported by the
5 research and authority in your field?

6 A Yes, they are supported.

7 Q Thank you.

8 MR. KASPER: Nothing further.

9 THE COURT: Mr. Smith.

10 CROSS EXAMINATION

11 BY MR. SMITH:

12 Q Good morning, Professor.

13 A Good morning.

14 Q I want to begin, if I might, by just being clear about the
15 particular effects that you are pointing to here so we can
16 understand that.

17 You mentioned I think in your summary that video game
18 exposure causes aggressive thoughts and aggressive feelings and
19 aggressive behavior, putting aside the issue of physiological
20 arousal. Those thoughts and feelings are short term phenomena?

21 A My judgment is, again, based on both the TV literature and
22 existing video game literature, that it's reasonable to
23 conclude that those are going to be longer term effects, as
24 well.

25 Q Well, do you have your declaration in this case in front of

1 you by any chance?

2 A No.

3 Q Handing you a copy of your declaration submitted to the
4 court in support of the motion and asking you to refer to
5 paragraph 12 at the bottom of Page 4, you've just listed short
6 term effects of exposure to video games there, right? Do you
7 see the four bullet points?

8 MR. SMITH: Would you like us to get another copy,
9 your Honor? I think we probably have one.

10 THE COURT: I think I've got it right here. What
11 page? I've got it right here. It's Tab 1 in the response.
12 Which paragraph?

13 MR. SMITH: I'm looking at paragraphs 11 and 12.

14 BY MR. SMITH:

15 Q You've just listed four of what you call short term effects
16 of most relevance to this case. Do you see that?

17 A Um-hm.

18 Q And then you say, "It is generally believed by media
19 violence researchers that the last three of these four short
20 term effects of exposure usually dissipate fairly quickly."
21 And those three are an increase in aggressive behavior, an
22 increase in aggressive thinking, and an increase in aggressive
23 emotions.

24 So, it is true, is it not, that your belief is that
25 aggressive thinking and aggressive emotions triggered by

1 exposure dissipate fairly quickly?

2 A No. This section specifically refers to short term
3 effects.

4 Q Okay. Let's turn over then to the next section, which
5 refers to the long term effects. That would be paragraph 14.
6 And you say there that the most relevant long term effects of
7 repeated exposure to violent media are an increase in
8 aggressive behavior, an increase in positive attitudes,
9 beliefs, and thought processes, and a reduction of normal
10 inhibitions against aggression; is that right?

11 A Yes.

12 Q Okay. So, now, we understand the increase in aggressive
13 behavior. The other two are effectively mechanisms that lead
14 to an increase of aggressive behavior? Is that fair to say?

15 A Yes.

16 Q And essentially what those are are part of your model over
17 here, the part that reflected how exposure to particular media
18 lead to a more aggressive set of attitudes or beliefs or
19 perceptions about the word, right?

20 A Yes.

21 Q Okay. So, just so I understand it, ultimately all of that
22 part of your testimony, in terms of attitudes and beliefs and
23 perceptions, effectively those are all things which you
24 ultimately say are harmful because those ways of thinking and
25 feeling lead to aggressive behavior; is that right?

1 A Yes and no. Yes in the sense that they are what seems to
2 lead to increases in aggressive behavior. What's less -- I
3 guess the part that I wouldn't necessarily agree with is
4 whether or not that's the only harm.

5 Q I guess that's what I'm trying to isolate, if I could, so
6 we know what's at stake here, Professor.

7 Is there some long term serious effect of playing
8 video games other than this behavioral effect which you're
9 telling us about that the court should be taking into account?

10 A If, in fact, one views thinking of the world in a more
11 aggressive kind of way as harmful and getting into more fights,
12 what does that impact -- what impact does that have on other
13 sort of psychological things, presumably there could be other
14 harms, as well.

15 Q So, just so I understand it, you've now identified in
16 addition to aggressive behavior thinking about the world in a
17 more aggressive way --

18 A Aggressive cognitions.

19 Q -- and then the psychological effects of getting into
20 fights? What did you mean by that?

21 A Again, this is hypothetical. We don't have -- well, there
22 is at least one study, correlational study, showing
23 increased -- showing an association between violent video game
24 play and problems, sort of psychological problems.

25 Q You mean clinical problems?

1 A Yes. Well, yeah, identified by a clinical instrument.

2 Q But you've certainly never testified here or in any other
3 place that the courts of this country or the legislatures of
4 this country should suppress video games because they cause
5 clinical problems, have you?

6 A Oh, no. Never.

7 Q And that's not your opinion today?

8 A That's not my opinion, no.

9 Q Now, going back to the aggressive model then, is it fair to
10 say that all of that portion of your testimony was an
11 explanation of the kinds of psychological effects in terms of
12 feelings and thinking that leads ultimately to what you predict
13 would be greater aggressive behavior down the road?

14 A Yes.

15 Q And that is really the gist of what that whole model is
16 about is explaining behavior ultimately?

17 A Yes.

18 Q Now, you would agree, wouldn't you, that the evidence that
19 exposure to a violent medium is clearer with respect to other
20 media, like TV and movies, than it is with respect to violent
21 video games?

22 A Yes.

23 Q And the effect sizes, putting aside the fact that there's
24 vastly more research on the TV side and that the evidence is
25 much clearer, the effect sizes that have been calculated by

1 people in your field are about the same on both sides of that
2 line?

3 A Yes, for the most part.

4 Q So, that's about a .2 correlation, you said --

5 A Right.

6 Q -- is roughly where we are?

7 A Yeah, roughly.

8 Q Or about 4 percent of the variance; is that right?

9 A Four percent of the variance here is a statistical concept.
10 It's not easily translated into understandable terms, but yes.

11 Q But that is, in fact, the statistical concept. You square
12 the correlation, and you get the R squared, and that gives you
13 the 4 percent of the variance. Now, you were about to clarify
14 that that's --

15 THE COURT: Hang on just one second, Mr. Smith.

16 (Brief pause.)

17 THE COURT: Go ahead.

18 BY MR. SMITH:

19 Q That 4 percent of the variance, roughly speaking, doesn't
20 mean that exposure to violent media causes 4 percent of the
21 aggression among people who'd had that exposure, does it?

22 A Right. It does not mean that.

23 Q What it means is if you could somehow -- for example, in
24 the experimental context, if you expose a pool of people to
25 games, either a violent game or a less violent game, and then

1 you give them sort of a test, like the noise blast, you're
2 going to have a vast range of difference in terms of how long
3 they hold that button down or how hard they push it, and of
4 that vast range, only 4 percent of that variation is in any way
5 statistically linked to the fact that they've just either
6 played a violent game or a nonviolent game?

7 A Yes.

8 Q 96 percent of that variation has to do with something else
9 altogether in what they brought into the room?

10 A Yes.

11 Q And, in fact, just so we understand it, if you look at the
12 research overall, in your judgment, if you're trying to predict
13 not immediate aggressive behavior like noise blasts, but long
14 term criminal behavior, serious violence, the effect size is
15 actually quite a bit less than .2; isn't that right?

16 A If you're trying to predict -- yeah. It tends to go down
17 the more severe form of aggressive behavior one is looking at,
18 and that would be true of any predictor.

19 Q Right. Because it's farther away and because it's a rare
20 event?

21 A Essentially, yes.

22 Q Now, just so I understand it, this .1 or -- it's more like
23 .1 for the more serious violence?

24 A It ranges from about .13 to a little bit larger, but the
25 .13 is one estimate that gets used a lot.

1 Q Okay. And what these measures are, this .13 or this .2,
2 are a correlation -- a perfect correlation is a 1.0?

3 A Yes.

4 Q And a perfect negative correlation is a zero; is that
5 right?

6 A No. A perfect negative is a minus one.

7 Q The absence of correlation is a zero; is that correct?

8 A Yes, exactly.

9 Q And so, these are on the scale -- from the absence of
10 correlation to a perfect correlation, they're at .13 or .2, and
11 that scale runs from zero to one; is that right?

12 A Well, it runs from minus -- yeah, okay. Minus one, plus
13 one, and zero being nothing. Okay.

14 Q Now, Professor, you don't believe, do you, that media
15 exposure of any kind by itself causes anybody to engage in
16 violent behavior?

17 A No.

18 Q You consider it just one of what you call risk factors?

19 A Exactly.

20 Q And in order for somebody to end up being a person that
21 would engage in violence, they have to have been exposed to a
22 number of different risk factors?

23 A Typically, yes. More extreme forms of violence usually you
24 can identify a number of risk factors.

25 Q But your belief is that in all cases for somebody to --

1 that media violence alone can't be the only risk factor?

2 A Except in rare cases of imitation, which we really haven't
3 talked about, where one directly copycats -- young children in
4 particular have a tendency to imitate exactly what they see.
5 That's a relatively rare phenomenon.

6 Q But in terms of what we're talking about here, which is
7 long term effects leading to people growing up to be more
8 aggressive people --

9 A Yes, exactly.

10 Q -- you need to have risk factors like poverty or abuse in
11 the family or some sort of violence in your environment that
12 you grow up?

13 A Yes.

14 Q Something like that, right?

15 A Exactly.

16 Q Or you would look at genetic factors?

17 A Certain genetic factors are also risk factors, yes.

18 Q Are there other powerful risk factors other than those
19 we've just named here that come to mind?

20 A Gang membership, or sometimes it's called antisocial peers.
21 There's probably a dozen or so. I mean, it varies a little bit
22 depending on who's writing the report, but there's about a
23 dozen or so such factors.

24 Q Now, you would say that exposure to a violent TV show or a
25 video game is a risk factor for everyone?

1 A Yes, in the sense that to date there really haven't been
2 any particular groups or subgroups identified that seem
3 consistently immune -- you know, totally immune, but there
4 probably are groups, certainly in the television violence
5 literature, that are more susceptible.

6 Q Right. Because they have other risk factors?

7 A Well, it's beyond the number of other risk factors, but
8 yes.

9 Q Certainly whether it's a risk factor for everyone or not,
10 you don't believe, do you, that most people who are exposed to
11 a healthy dose of violent TV or video games will end up
12 committing a lot of violent acts in their life?

13 A If by healthy, yeah. I mean --

14 THE COURT: You'd call it unhealthy.

15 BY THE WITNESS:

16 A I would call it unhealthy dose. But, no, I agree with the
17 gist of the statement.

18 BY MR. SMITH:

19 Q In fact, the vast majority of the kids that are out there
20 playing video games right now that you consider violent video
21 games are going to grow up and be just fine; isn't that right?

22 A I would guess that -- I would predict that, yes.

23 Q And when you talked in your testimony about how children
24 who are exposed to violent video games tend to become social
25 rejects and that leads to a greater series of psychological

1 problems, you don't consider most of the kids who are playing
2 violent video games or other kinds of video games right now to
3 be social rejects, do you?

4 A Oh, I don't believe I said -- it may have been
5 misunderstood.

6 Q Well, you did say that was one of the -- I'm sorry.

7 A What I was trying to convey was that kids who become more
8 aggressive, for whatever reason, tend to go off on this
9 developmental trajectory where their relationships with their
10 parents deteriorate, relationships with teachers deteriorate,
11 and so on. But I did not mean to imply that there's any
12 research saying that violent video games has led to this
13 increase in aggression and that we now also have evidence that
14 they become the social rejects and blah, blah, blah.

15 Q Right. Whatever effects the video games have, they don't
16 lead to the kind of aggression which you said leads people to
17 have problems with their teachers and their families and their
18 peers?

19 A It's another risk factor. It's one of many.

20 Q And the reality is, of course, that a large majority of
21 kids these days are playing these games; is that right?

22 A It looks like, yes, a majority of kids are at least
23 occasionally playing some violent video games, the vast
24 majority.

25 Q And one of the reasons for that is because when you use the

1 term violent video games, you're talking about games that range
2 all the way from Sonic The Hedgehog, which you've just
3 mentioned, up through Mortal Kombat and beyond, up to Grand
4 Theft Auto; is that right?

5 A Yes. Although, obviously, there are degrees of violent
6 content.

7 Q Sure, there are degrees, but in your world view, an E-rated
8 game that's rated absolutely appropriate by the industry for
9 everyone, like a Sonic The Hedgehog game, is a violent video
10 game that can be harmful to kids of any age and to adults, for
11 that matter; is that right?

12 A Yes. We have some research evidence that -- not on Sonic
13 The Hedgehog game, but on some other E-rated games.

14 Q You did just mention that as one of the games that was
15 being used in those prior studies?

16 A Right.

17 Q As one that would be a different comparison than a billiard
18 game because it is more violent?

19 A It's more violent than the billiard game, but it would
20 still be on the low violent.

21 THE COURT: I suppose not if you're the billiard ball.

22 THE WITNESS: Well, that's true.

23 MR. SMITH: Fair point, your Honor.

24 BY MR. SMITH:

25 Q Now, Professor, you can't sit here and tell us how much

1 violence would be reduced in the world if we were to, in fact,
2 cut off people under 18 from buying games that are covered by
3 the statute, can you?

4 A No.

5 Q And that's for a whole variety of reasons. For one thing,
6 you've never tried to do any calculation of what percentage of
7 the violence in this country is, in fact, caused by exposure to
8 violent media, have you?

9 A That is correct.

10 Q And we also know, don't we, that most of the games that are
11 played by people under age 18 are bought by their parents,
12 right?

13 A I don't know that.

14 Q You don't have any information about that subject?

15 A Some of my coauthors in various papers may have, but I
16 don't recollect. I mean, I wouldn't be surprised, but I don't
17 know.

18 Q Well, does the psychological literature tell us anything
19 about what happens if you cut off access to one particular
20 medium or one particular set of games in terms of what kids do
21 to replace that in their media diet?

22 A Not that I know of.

23 Q Do you have any basis to say whether or not if, in fact, we
24 had an effective mechanism that said we're not going to let the
25 kids in Illinois have any more access to violent video games,

1 whether they're bought by their parents or not, whether they
2 would, in fact, be exposed to less violence in the media
3 thereafter?

4 A There's some reason to believe that their in some sense
5 total media violence consumption would go down, but also
6 there's some reason to believe it wouldn't go down exactly the
7 amount of hours that they're playing violent video. There's
8 some reason to believe that their consumption of TV violence
9 would go up, but probably not by a comparable or at least an
10 exact same amount. But, again, I just -- that's speculation.

11 Q Basically we have to speculate about whether or not there
12 would be any reduction at all?

13 A Yes, at this point.

14 Q Now, is it fair to say that violent video games did not
15 become particularly violent until the early 1990s?

16 A They certainly took a jump in the early '90s, yes.

17 Q Prior to that time the violence in games was very stylized
18 and cartoonish, and then there was kind of a revolution in game
19 design around 1993, 1994?

20 A Yes.

21 Q And because of the technological changes, the games become
22 more realistic, and we also saw the introduction of the first
23 person shooter games that are a matter of concern to you about
24 that time?

25 A Yes.

1 Q Now, it's also true, is it not, that if you went back to
2 the early 1990s about the time that revolution occurred and
3 compared that to the present, the amount of time that kids are
4 spending playing video games per capita has probably tripled?

5 A Yes. I don't have the exact figures in front of me, but
6 yes, it's gone up a lot.

7 Q Well, did you discuss that in your draft of the book that
8 you talked about in which the longitudinal study is included?

9 A Probably.

10 Q Let me put that in front of you, if I could, and ask you to
11 look at Page 13 and see if that refreshes your recollection
12 about whether or not the hours per week played by kids in this
13 country has tripled since the early 1990s up to the time when
14 this book was drafted. Do you see there on Page 13 it reports
15 an average back in the early 1990s of two hours for girls and
16 four hours for boys, and then later on we're up to nine hours
17 per week for both?

18 A With boys averaging thirteen hours and girls five.

19 Q Right.

20 A Right.

21 Q Now, it's also true, is it not, Professor, that during that
22 same roughly eleven or twelve-year period since the
23 introduction of these much more graphic violent games, the
24 introduction of first person shooters, and during that time
25 when the exposure was going up by threefold, the crime rate,

1 the violent crime rate for adolescents in this country, has
2 gone down substantially?

3 A I don't actually have those numbers. Certainly the arrest
4 rates and -- there's different ways of measuring that.

5 Q If you look at arrest rates and victimization rates, they
6 peaked in 1994 in this country and have gone down roughly 50
7 percent, both for juvenile crime and for overall violent crime;
8 is that right?

9 A I don't know.

10 Q You've never looked at those data?

11 A No, I have not. Not that I can recall.

12 Q Isn't it a fact that in all of your articles you wrote
13 until the early 1990s, in many of them you would report those
14 exact violent crime rates, and you stopped doing it in more
15 recent articles?

16 A Yeah, in a couple articles with Brad Bushman. Brad -- we
17 reported some FBI crime rate statistics, yes.

18 Q Right. And the last time you did that with him was about
19 2001?

20 A Um-hm.

21 Q You talked about how there had been an explosion of
22 violence in this country from 1950 up until about 1994. Do you
23 recall that?

24 A I recall the figure. I don't recall exactly where the peak
25 was.

1 Q So, you would agree with me, having signed on to those
2 articles, that looking at the overall crime rate in this
3 country is something that we ought to think about when we're
4 looking at the effects of violent media?

5 A Actually, I don't think it's terribly relevant, but Brad
6 really liked that figure and wanted to use it.

7 Q You've also authored at least five or six articles which
8 all start off with a paragraph talking about Columbine and
9 Paducah and all the other high school shootings, haven't you,
10 Professor?

11 A Yes, I have.

12 Q And you don't have any basis to say that any of those
13 shootings had anything to do with video games, do you?

14 A Correct. And, in fact, in most, if not all of those cases,
15 those articles also point out that such incidents do not
16 constitute scientific evidence, that that's why we need to do
17 research.

18 Q But despite that fact, you thought it was appropriate to
19 make them the introductory paragraph in your articles in the
20 psychological journals?

21 A Yes.

22 Q And especially the ones that you wrote for the more popular
23 audiences?

24 A I don't have a recollection of what appears where.

25 Q Now, I want to, if I could, turn to the categories of

1 methods that we have available that you and others have used to
2 study the effects of violent video games.

3 The first we have is these experiments that you've
4 been describing and that Professor Williams talked about, which
5 are the ones where you expose people to a game for ten or 15
6 minutes at the most and then you see in the immediate aftermath
7 where they are or they are not more aggressive on some measure.

8 The great strength of those kinds of studies is that
9 they can really establish cause and effect in the short term;
10 is that right?

11 A Yes, that's the biggest.

12 Q And the real drawback of them is that they can't tell you
13 anything about long term effects on their own, right?

14 A What they can tell you in conjunction with psychological
15 theory about learning processes is what's likely to happen.

16 Q So, that's basically what these charts and graphs over here
17 are supposed to do is to sort of get you from the noise blasts
18 up to some prediction about how somebody is going to behave in
19 ten or 15 years and a prediction about their being more
20 violent?

21 A That's generally what the theoretical models are about.

22 Q Now, there's never been any experiment that shows that
23 somebody engages in serious aggression in the immediate
24 aftermath of being exposed to a violent video game; is that
25 right?

1 A Not that I know of, that would not get by an institutional
2 review board.

3 Q Now, so, in order for anybody to draw any conclusions about
4 serious aggression, long term effects, the kinds of things
5 which you ask the court to take into account here, we have to
6 buy into the model as somehow a predictor, as a way to sort of
7 make that leap from the experiments up to the real world in the
8 long run?

9 A One doesn't have to buy into necessarily my preferred model
10 because there are other models out there.

11 Q We just have to buy one of them.

12 A You have to buy one of them, and you have to -- well, and
13 it's also the case that, at least in my view, the longitudinal
14 studies done in the television violence area are relevant, as
15 well.

16 Q So, you basically go over and say if it happened with
17 television, it must happen with video games?

18 A It's very likely, yes.

19 Q Now, before we get to the longitudinal piece, let me talk
20 about these correlation studies. You had some discussion in
21 your direct examination about causation and what they show
22 about causation. You agreed I think in your direct that no
23 single correlation study can establish causation between
24 exposure to the game and the aggression measure that's
25 happening simultaneously; is that right?

1 A Correct.

2 Q And the reason for that is you're basically taking the two
3 measures at the same time. You're asking people what games do
4 you play and what do you like as a person simultaneously?

5 A Right.

6 Q And so, the problem is that people who have particular
7 characteristics, whether it be aggressiveness or loneliness or
8 whatever it might be, are very likely to have those
9 characteristics play a role in their decisions about what media
10 they want to consume, what games or what TV or whatever it may
11 be?

12 A There certainly is research in the TV literature suggestive
13 of that.

14 Q And you yourself believe that some of this .2 effect that
15 you've talked about is, in fact, reflective of that
16 bidirectional causality, that the causation is, in fact, going
17 the other direction?

18 A From the correlational studies, yes. The effect sizes that
19 are estimated from, say, the longitudinal studies take that
20 into account.

21 Q Right. But we're talking here about correlation studies.

22 A Okay.

23 Q And so, to the extent that you report a .2 correlation
24 between aggressive measures and the amount of violent video
25 game somebody plays, you would agree and it is, in fact, your

1 belief that some percentage of that .2 correlation reflects the
2 aggressive personality of the person causing them to decide
3 what game to play?

4 A Yes.

5 Q So, if we were actually going to try to isolate what the
6 amount of the so-called effect size is, which really is an
7 effect size, which is to say the game's causing the aggression,
8 it would be something less than .2?

9 A Yes. Although, you know, again, the estimates -- I guess
10 the estimates don't particularly matter, whether you start at
11 .2 or start at .25 or whatever.

12 Q And one of the problems with correlations is sitting here
13 today you can't tell us how far down that would go, whether it
14 would go all the way to zero, for example. You have no way to
15 separate in the correlation studies themselves how much the
16 causation goes this way and how much the causation goes that
17 way?

18 A Yes and no. There are a few studies that have a measure of
19 aggressive personality and a measure of violent video game
20 exposure and a measure of aggressive behavior, and those
21 studies do tend to find that you still have a significant
22 effect of video game violence on aggressive behavior after you
23 control for sort of trait aggression. Those are fairly rare.

24 Q Most of the correlations don't have anything like that in
25 them?

1 A Most don't.

2 Q Including the ones that you've done?

3 A Well, some of the ones we've done do.

4 Q Now, if we look at the research on violent video games,
5 leaving aside the television, which we'll get to, if we sit
6 here today, we have your one longitudinal study and the
7 unpublished book chapter, and everything else that's ever been
8 done is either one of these short term experiments or it's a
9 correlation study or it's Dr. Williams' one month, whatever you
10 want to call that. That's the total state of the research that
11 exists in the world at this point; is that right?

12 A Well, on violent video games, yes.

13 Q Yes. And you believe basically that the ones you've
14 described here and in the exhibits that have been put in are
15 the state of the art, both experimental and correlational
16 studies, that are out there?

17 A I believe what I talked about for the most part are
18 representative of generally good studies.

19 Q Right.

20 A I'm not sure what --

21 Q Well, and if you go back to the Anderson and Dill piece in
22 the year 2000, basically you think that's the first time
23 anybody did it right in either side. The first experimental
24 study that made an attempt to control for arousal and the first
25 correlation study that focused on the right measures of

1 aggression and the right measures of video game exposure,
2 right?

3 A No. There were some prior studies that had some pretty
4 good methods, but didn't have what I would regard, at least at
5 that time, as a good sample -- they didn't have a big enough
6 sample size.

7 Q So, if we throw that in the mix, it was certainly your view
8 at the time, the year 2000, that those were the first studies
9 that were done the right way in either of those categories,
10 right?

11 A Only if you include --

12 Q Sample size.

13 A -- the caveat that -- sample size.

14 Q Well, that's a pretty important caveat, wouldn't you say,
15 whether the sample size is large enough to give you meaningful
16 results?

17 A It is -- yes, I think it's very important, except when one
18 is -- I mean, you could have a lot of well designed, well
19 carried out studies with a too small sample size that when you
20 combined meta-analytically start to make more sense.

21 Q Right. But going back to that time in the year 2000, we
22 didn't have that, either. The only meta-analysis that first
23 appeared in this area was a year later?

24 A Yes.

25 Q Right. But in that year, early 2000, when you had just

1 done what you thought was the first adequate correlations and
2 experimental studies and we had no meta-analysis yet, you were
3 already testifying before a Senate committee that the evidence
4 was very clear that video games caused violence; is that right?

5 A I don't remember the exact testimony, but I believe that it
6 seemed clear to me in part because we had already started the
7 meta-analysis.

8 Q You had started the meta-analysis, but not completed it?

9 A We had done most of the analyses by then.

10 Q And what that was was the study combining correlations and
11 experiments that existed as of the year 2000?

12 A Yes. Well, that's the 2001 meta-analysis.

13 Q Right. But as of March 21st, 2000, when you testified in
14 front of Senator Brownback, you had done some of that
15 meta-analysis?

16 A That's my recollection.

17 Q And you had done the Anderson and Dill experiment with
18 Wolfenstein and Myst?

19 A Yes, that would have been done.

20 Q And you had done the correlations that you talked about,
21 that you had done the correlations that were included in that
22 same Anderson and Dill piece?

23 A Yes, I would assume so.

24 Q And you were willing at that point to come in and say to
25 the Senate committee that "Though there are many complexities

1 in the realm of behavioral research, there was one clear and
2 simple message that parents, educators, and public policymakers
3 such as yourselves need to hear. Playing violent video games
4 can cause increases in aggression and violence." Is that
5 right?

6 A Yes. I mean, I assume that's -- you're reading. I don't
7 know exactly where that is.

8 Q Now, I wanted to ask you, if I could, about the correlation
9 that you talked about. You had started doing this in the
10 Anderson and Dill piece, and you've done it more recently,
11 where you actually try to do some kind of a calculation of
12 aggressiveness using some scales off the National Youth Survey?

13 A Yes.

14 Q You mentioned that, I think, in your direct testimony, that
15 you picked some measures of aggression off the National Youth
16 Survey?

17 A Yes.

18 Q And you've said in the past that you think that's an
19 indication that there's a correlation between video game play
20 and criminal behavior, haven't you?

21 A Yes.

22 Q Do you still take that position?

23 A Yes.

24 Q But the reality, in fact, is that some of those measures
25 that you had on that scale were criminal and some of them were

1 not?

2 A One of them is not.

3 Q And what was that behavior?

4 A That was throwing rocks, snowballs, or other objects at
5 people.

6 Q Okay. So, you produced a composite score for these college
7 kids that were in this survey and asked them "In the past year
8 have you done any of the following things" and combined all of
9 these self-reports about the things they had done into a score,
10 and since your deposition you've now gone back and checked to
11 figure out there was only one of those that was noncriminal?

12 A Yes.

13 Q Okay. Now, can you tell us have you gone back and checked
14 how many of the people got a high score on this measure of
15 criminal aggressiveness because they had thrown snowballs in
16 the past year?

17 A No, but we have gone back -- I did go back -- not in the
18 Anderson and Dill data sets. That's an old data set. I'm not
19 sure I can recreate it there. But in a newer data set that
20 appears in this book with high school students, where we have
21 the same measure of video game violence exposure, the National
22 Youth Survey thing, I went back and calculated a correlation
23 without that item, and the correlation dropped from about .36
24 to about .33 when you delete that item.

25 Q Right. But can you tell us -- you can't tell us sitting

1 here then on the Anderson and Dill article what percentage of
2 people got a high score because that was the behavior they had
3 engaged in?

4 A Well, no, not exactly.

5 Q Okay. Now, in the Anderson and Dill correlation, you had
6 227 college students that you gave these questionnaires to?

7 A Yes, roughly.

8 Q Roughly. And two-thirds of them or more were women?

9 A Could be. It was more women than men.

10 Q Can you tell us what percentage of these undergraduates at
11 the midwestern university had, in fact, engaged in criminal
12 aggression in the past year when you asked them that question?

13 A Well, we deleted two items that no one reported having
14 done.

15 Q That was two out of ten, right?

16 A Two out of ten. So, that left six that at least one person
17 in this sample reported having done recently.

18 Q But is it fair to say that it was a minute fraction of the
19 227 people who had engaged in any form of criminal aggressive
20 behavior?

21 A I would guess that it would be a small fraction, yes.

22 Q Is it under ten? You have no idea?

23 A I would guess that it would be under ten.

24 Q Was it under five?

25 THE COURT: What now are you talking about?

1 MR. SMITH: Five people, your Honor, is what I --

2 BY THE WITNESS:

3 A No, no, no. I'm sorry. Ten? I thought you meant 10

4 percent. I'm sorry.

5 BY MR. SMITH:

6 Q Thank you for that clarification. You think it's under

7 ten, which would be 22 people?

8 A Well, we know at least six.

9 Q How do we know that again?

10 A No, that wouldn't necessarily be the case.

11 Q You know there are eight things that one person did.

12 THE COURT: There could be one person that did all six

13 categories.

14 THE WITNESS: There could be one person, right.

15 BY MR. SMITH:

16 Q That's eight, right, categories, isn't it?

17 A Yeah. It actually couldn't be one person doing six, or the

18 reliability coefficient couldn't have been what it was.

19 Q Where does the number six come from?

20 A There were six items that at least one person --

21 Q I thought it was ten, and you deleted two, leaving eight.

22 That's just what's confusing me. It was eight, and you deleted

23 two, and it was six?

24 A I was deleting the --

25 Q Oh, the snowballs.

1 A The snowballs. So, it's actually seven. You're right. I
2 was thinking of -- sorry.

3 Q So, we know there were seven behaviors that somebody
4 engaged in?

5 A It's the "appraisal."

6 Q Right. Like "appraisal."

7 But we don't know how many people out of that 227
8 engaged in any of those seven behaviors?

9 A I don't at this point, no.

10 Q But you think it was less than 22, at least?

11 A I would think so. Less than 22.

12 Q Now --

13 THE COURT: Find a convenient place to pause.

14 MR. SMITH: This would be fine, your Honor.

15 THE COURT: Okay. We've going to break until about
16 1:40, but before we do that, I want to revisit the topic I
17 raised at the end of the day yesterday about combining this
18 with the final determination of the case. So, give me your
19 thoughts.

20 MR. SMITH: Your Honor, we've gone back and thought
21 about that and tried to figure out whether there's a lot of
22 other evidence we would put in if this was a merits trial, and
23 with the caveat that we think Dr. Goldstein's testimony is very
24 important and that that will get weight, even though it's on
25 paper -- he's effectively been cross-examined in his

1 deposition.

2 THE COURT: So, somebody could give me the deposition.

3 MR. SMITH: Yes.

4 MR. KASPER: We have it here today.

5 MR. SMITH: And obviously with the caveat that the
6 other declarants' testimony will get the weight it would get,
7 because we do have to establish vagueness and the censorship
8 aspects of this, we would certainly think it appropriate,
9 because I really can't think of what else we would put on, for
10 you to go ahead and decide the case.

11 MR. KASPER: We agree with that, your Honor.

12 MR. DRYJANSKI: Your Honor, just speaking for the
13 Attorney General's Office, our position is we may not
14 necessarily not disagree with what was just said.

15 THE COURT: Whoa. You got to do that again.

16 MR. DRYJANSKI: Basically our position is because
17 there are still motions pending, motions to dismiss --

18 THE COURT: Let's assume they're denied. What's your
19 position? I'm not saying I'm going to deny them, but I need to
20 know the answer now, not whenever I end up deciding them.

21 MR. DRYJANSKI: I think our position would still be
22 that assuming the motion is denied, our office would really
23 want to look at it more in detail to see if there is something
24 we would want to put on. But that may not end up being the
25 case. And I understand you don't want to put that off very

1 long.

2 THE COURT: So, that's a nonanswer, basically. What's
3 your answer, Mr. Garcia?

4 MR. GARCIA: We have no position. I can't imagine
5 there's anything else we would put on.

6 THE COURT: Okay. Fine. I'll rule on your motion at
7 1:30. I'll see you at 1:40. Actually, 1:40, not 1:30.

8 (Whereupon, the within trial was recessed to 1:40 o'clock
9 p.m. of the same day.)

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1 IN THE UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF ILLINOIS
3 EASTERN DIVISION

4 ENTERTAINMENT SOFTWARE)
5 ASSOCIATION, et al.,)
6 Plaintiffs,) No. 05 C 4265
7 v.) Chicago, Illinois
8 ROD BLAGOJEVICH, et al.,) November 15, 2005
9 Defendants.) 1:40 p.m.

10 TRANSCRIPT OF PROCEEDINGS
11 BEFORE THE HONORABLE MATTHEW F. KENNELLY

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1 (The following proceedings were had in open court:)

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

3 THE COURT: Could the lawyers please give your names?

4 MR. SMITH: Paul Smith for the plaintiffs.

5 MS. FALLOW: Katherine Fallow for the plaintiffs.

6 MS. HARTNETT: Kathleen Hartnett for the plaintiffs.

7 MR. SANDERS: Dave Sanders for the plaintiffs.

8 MR. KASPER: Michael Kasper for defendant Blagojevich.

9 MR. DEADY: Patrick Deady for defendant Blagojevich.

10 MR. DRYJANSKI: Andrew Dryjanski for defendants

11 Madigan and Blagojevich.

12 MS. PARSELL-BURKE: Ellecia Parsell-Burke for

13 defendant Madigan and defendant Blagojevich.

14 MR. GARCIA: Stephen Garcia for defendant Devine.

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

16 MR. DRYJANSKI: Your Honor, may I say something to the

17 Court?

18 Earlier you had the question regarding the conversion.

19 We would -- the office of the attorney general would go along

20 with the conversion with the plaintiff and defendant

21 Blagojevich.

22 THE COURT: All right. Well, I am going to go ahead

23 and rule on these motions anyway. Quite honestly, if I had

24 planned to do them orally, I would have been in a position to

25 do it at the beginning of the hearing, and the only reason I

1 didn't do that was that my intention was to put it in an
2 opinion, in the written opinion, whatever it turns out to be,
3 that I write after this.

4 But now that I spent not only that time, but the time
5 over the last hour and a half collecting my thoughts on that, I
6 am just going to go ahead and rule on it. Both motions to
7 dismiss are denied. Here are the reasons.

8 First of all, the primary argument that is made by
9 both defendant Madigan and defendant Devine is that the lawsuit
10 is barred by the Eleventh Amendment, which, as some
11 commentators have noted, despite its language, precludes the
12 commencement of a suit not only by citizens of one state
13 against another state, but by citizens of the same state,
14 although I am not sure it would matter in this case. I am not
15 sure what the citizenship of the plaintiffs is.

16 There is an exception to that rule under the case of
17 *Ex Parte Young*, 209 U.S. 123, a decision by the Supreme Court
18 about 97 years ago. And what the Supreme Court said in *Ex*
19 *Parte Young* is that a state officer can be made a defendant in
20 a suit to enjoin the enforcement of an allegedly
21 unconstitutional act so long as the officer has "some
22 connection with the enforcement of the act."

23 And actually the full quote is a little bit broader
24 than that. It's quoted by the plaintiffs in their response.
25 What the Supreme Court said at page 157 is:

1 "The fact that the state officer by virtue of his
2 office has some connection with the enforcement of the act is
3 the important and material fact, and whether it rises out of
4 the general law or especially created by the act itself is not
5 material so long as it exists."

6 Now, as the plaintiffs correctly point out, if you
7 read defendant Madigan and defendant Devine's motions together,
8 essentially there would be no one to sue, I suppose, unless you
9 were to sue the entire citizenry of the State of Illinois.
10 Defendant Madigan basically says, well, I don't have anything
11 to do with prosecuting local offenses, and defendant Devine
12 says, we don't prosecute misdemeanors unless a citizen or a law
13 enforcement agency brings them to us.

14 The "unless" would probably be good enough anyway, and
15 there is some indication in the interrogatory answers that
16 there is a little bit more to it than that. But if you take
17 these together, there would essentially be no one to sue. I
18 guess we would still have one defendant left in the lawsuit,
19 defendant Blagojevich, which, somewhat paradoxically I think is
20 the defendant that has the best Eleventh Amendment argument but
21 has chosen not to make it for whatever reason.

22 But in looking at what has been cited to me, I am
23 persuaded by the plaintiffs' contention, first of all, with
24 regard to the attorney general, that under Illinois statute,
25 she has the obligation to institute and prosecute all actions

1 and proceedings in favor of or for the use of the state which
2 may be necessary in the execution of the duties of any state
3 officer. She has exclusive jurisdiction to represent the state
4 in appellate criminal proceedings. She has the duty to provide
5 assistance and guidance to county state's attorneys and their
6 prosecutions under state laws. She can investigate criminal
7 offenses in conjunction with state's attorneys.

8 So this is more than just a generalized duty to
9 enforce the law, and I think that, under *Ex Parte Young*, it is
10 sufficient. So that is why defendant Madigan's motion is
11 denied.

12 With regard to defendant Devine, as I indicated, there
13 is an interrogatory answer that suggests at least some closer
14 connection with enforcement of the law. It was initially
15 discussed in the briefs, and I think that either one of those
16 would be sufficient.

17 There is a second argument made by defendant Devine,
18 that because they basically said, well, we are not going to do
19 anything about any of these cases until the case is over, until
20 the present case is over with, that there isn't really a viable
21 claim for a declaratory judgment against him; in other words,
22 it's a hypothetical case.

23 I don't agree with that, and really the reason I don't
24 agree with that is because it is a First Amendment case. And
25 really that takes me back to one of the real problems with the,

Anderson - cross

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1 BY MR. SMITH:

2 Q Good afternoon, Professor.

3 A Good afternoon.

4 Q I want to turn, if I might, to the issue of longitudinal
5 studies, and longitudinal studies, I believe you said, are
6 important essentially for two reasons. They can study longer
7 term effects directly and they help you identify causation, is
8 that correct, or is that a fair summary?

9 A They also help you rule out alternative explanations, which
10 is what is relevant to the causation issue.

11 Q Now, in fact, you believe that consistent results across
12 all three categories of studies, experimental, correlational
13 and longitudinal are necessary before scientists can avowedly
14 conclude that video game play causes aggressive behavior, don't
15 you?

16 A Yes, but with the caveat that I believe that the television
17 violence longitudinal studies are certainly relevant.

18 Q But referring to Exhibit 8, which I guess I am not sure
19 whether it's in evidence.

20 THE COURT: 8?

21 BY MR. SMITH:

22 Q 8, which is the article. Defendant's Exhibit 8, I am
23 sorry.

24 THE COURT: You know, I am considering all the
25 exhibits that have been offered to be in evidence.

Anderson - cross

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1 MR. SMITH: That is helpful.

2 BY MR. SMITH:

3 Q This is the article that is in evidence, I guess, now,
4 Professor Anderson, if you turn over to page 229 of your public
5 policy article.

6 Do you have that up there?

7 A Which page?

8 Q 229, top of the left-hand column.

9 A Okay.

10 Q This is a document which was authored this year and is
11 about to be published in a book, is that right?

12 A Yes, it is.

13 Q That is where you made the statement that before scientists
14 are willing to believe that playing violent video games
15 predicts aggressive behavior, they would want to see studies of
16 each type performed and determine whether the results of the
17 different studies converged.

18 In that sentence, you were referring to experimental,
19 correlational and longitudinal, right?

20 A Yes.

21 Q If you look back at the previous three?

22 A Yes.

23 Q You made that statement in this article, or in this
24 chapter, I guess it was, after you had a longitudinal study in
25 hand to report, which you then go on to describe in the rest of

Anderson - cross

314

1 this publication, right?

2 A Yes.

3 Q You certainly didn't make that statement in any of your
4 previous articles which have made similar causal claims based
5 solely on experimental and correlational studies, right?

6 A I am sorry?

7 Q You didn't make the same statement that longitudinal
8 studies are essential before scientists would believe -- would
9 accept the claim of causation in any of your previous articles,
10 did you?

11 A I can't honestly say. I mean, I have certainly talked
12 about the value and the need for longitudinal studies as part
13 of a triangulation on truth regarding that particular
14 hypothesis. But I also believe that television violence
15 longitudinal studies are relevant.

16 Q You didn't say here that the television studies were not.
17 You said longitudinal studies on video games were essential
18 before all three -- before scientists would believe that video
19 games predict aggressive behavior, right?

20 A That's not quite what the sentence says.

21 It says before scientists are willing to believe that
22 playing violent video games predicts aggressive behavior, they
23 would want to see studies of each type performed and determine
24 whether the results of the different studies converged.

25 It does not say that all three would have to be

Anderson - cross

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1 specifically with video games. It could be media violence
2 studies.

3 Q You go on to the end of the paragraph and you say:

4 "Although more research is needed, all of these types
5 of studies have been conducted with similar results. Playing
6 violent video games can indeed cause increases in aggressive
7 thoughts, feelings and behaviors."

8 You are not referring there to television studies,
9 right?

10 A You say the same paragraph?

11 Q Yes.

12 THE COURT: Last sentence of the same paragraph.

13 THE WITNESS: I see, okay.

14 I am not sure.

15 BY MR. SMITH:

16 Q Let me ask you about the one longitudinal study you have
17 done. You mentioned there were three.

18 There are two others which you said had been poorly
19 done, Slater and some other one?

20 A I am not sure I would say that they were necessarily poorly
21 done, but they are not as relevant.

22 Q Okay. They are --

23 A Slater and Ihuri.

24 Q You don't consider them particularly significant for
25 present purposes, is that fair to say?

Anderson - cross

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1 A Yes.

2 Q Now, the one that you did differs substantially from the
3 television studies that you mentioned just now in that the
4 length of the study period was something like two to five
5 months as opposed to something like 15 or 20 years?

6 A Yes. The time period in the one in this book was two to
7 six months.

8 Q Six months, thanks.

9 And the games that were being played by these
10 elementary school kids were whatever games they happened to be
11 playing, right?

12 A Yes.

13 Q So they are primarily games that are played by elementary
14 school kids?

15 A Yes, although that is, obviously, quite a range.

16 Q Quite a range including a lot of very childish cartoonish
17 games, is that right?

18 A I would assume some of them are, yes.

19 Q A lot of the games that we are studying here then would be
20 games functionally equivalent to a Saturday morning cartoon
21 show?

22 A I can't really say how equivalent they would be. I know
23 that there are certainly E rated children's games that have a
24 lot of shooting in them, but so does Road Runner, not so much
25 shooting, but --

Anderson - cross

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1 Q You would certainly call Road Runner a very violent
2 cartoon?

3 A In the television literature, it's considered a pretty
4 violent cartoon, yes.

5 Q I think you said in your deposition that television
6 literature concludes that things like Road Runner and Bugs
7 Bunny have caused significant amounts of harm in causing
8 aggression?

9 A They certainly have been identified as some of the violent
10 media that young children consume that was part of that measure
11 of childhood media violence consumption that later predicted
12 long-term effects.

13 Q Now, turning back to your longitudinal study, whether or
14 not a game like Super Mario Brothers or Sonic The Hedgehog or
15 whatever it may be was considered violent was something that
16 you left up to the third or fourth-graders to decide
17 themselves?

18 A Yes. They rated violent content.

19 Q Did you tell them what it means to be violent?

20 A This study was actually run by Dr. Gentile, and I don't
21 know the exact instructions that the students got.

22 Q As I understand it, what you did is you asked them to tell
23 you how much those kinds of games they played and other kinds
24 of games, and you came up with some sort of measure of their
25 video game -- violent video game exposure?

Anderson - cross

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1 A Yes. They used a fairly standard measure of violent video
2 game exposure.

3 Q Then you had various measures of aggression before the
4 start of the time frame which were done by what, peer reports
5 as well as teacher?

6 A Peer reports, teacher reports and self-report.

7 Q Then essentially what you did is you said is the aggression
8 at time two, taking into account the aggression at time one, is
9 the change in aggression significantly related to the kinds of
10 games they were watching back at time one? Is that a fair
11 summary?

12 A Yes.

13 Q Now, when you did that, once you took into account the
14 other possible variables, just so we are clear, the percentage
15 of the change that occurred between time one and time two that
16 was related to violent video game exposure was somewhere
17 between 1 and 4 percent?

18 A Yes. For physical aggression, it was -- depending on how
19 many variables you controlled for was about 3.6 percent, if you
20 control for a whole bunch of things, to I believe it was about
21 15 percent as sort of like the raw correlation.

22 Q To get to 15 percent, you would have to not control for the
23 aggression at time one, which is to say you are basically
24 comparing their overall level of aggression with their video
25 game consumption, which makes it a correlation study?

Anderson - cross

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1 A Yes. I mean, a correlation study across time, but, yes.

2 Q If you don't back out the aggression at time one, you are
3 basically not accomplishing the purpose of a longitudinal
4 study; is that fair?

5 A Exactly.

6 Q So the 15 percent figure isn't really relevant, is it?

7 A Not as relevant, certainly.

8 Q Now, the documents at least that we have been provided
9 don't report this, and maybe you can tell us: What was the
10 amount of change in aggression that occurred between time one
11 and time two in this period of two to six months in elementary
12 school years for these children?

13 A On the composite physical aggression measure, that's not
14 really easy as specifying. We did look at one of the --
15 earlier today, one of the figures that just focused on fighting
16 at school, and it showed changes on the order of roughly 20 to
17 30 percent increase in percentage of kids comparing low video
18 game violence children to high video game violence children.

19 Q I don't think that is quite responsive to my question.

20 My question is: How much did these kids actually
21 change? We have a figure of -- the video game exposure
22 explains 3.6 of the variance. I want to know what a hundred
23 percent of the variance is in terms of changes over this one
24 short period of time in one school year, in elementary school
25 years.

Anderson - cross

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1 Is there a way you can tell us? Was there a great
2 increase in aggression for these kids, or is there any way you
3 can quantify that at all?

4 A Well, about the only way, off the top of my head at least,
5 that we can quantify that is by looking at the changes in the
6 proportion, who got into fights as a function of whether they
7 were low game players or high game players.

8 That's not quite what you are looking for, I don't
9 think.

10 Q I guess what I am asking you is can you tell us, isn't it
11 true that the people who started out very aggressive stayed
12 very aggressive, and the people that started out low aggressive
13 stayed pretty low aggressive?

14 A That's generally true, yes.

15 Q There was a high correlation between aggression at time one
16 and aggression at time two?

17 A Yes. That correlation probably, going from memory here,
18 was probably about .4, .5.

19 Q So whatever amount of change there was, and it was a
20 reasonably small amount, is that fair to say?

21 A In terms of the average level?

22 Q Yes.

23 A I would assume that the amount of change overall would be
24 small.

25 Q And that variance, then you were able to explain something

Anderson - cross

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1 like 3.6 of that small variance by looking at their video game
2 exposure?

3 A Yes, that would be a fair statement.

4 Q Now, in this study, one of the things that they got in
5 advance of the study period was not just a measure of video
6 game exposure but also a measure of violent television
7 exposure, violent movie exposure, exposure to professional
8 wrestling, exposure basically to other violent media that kids
9 consume, is that right?

10 A Yes.

11 Q And when we got to the end of the study period, and there
12 were variables then put in to try to see whether or not they
13 helped to eliminate other causes, those three variables,
14 although they were calculated, were not included to try to see
15 whether they affected the measure of video game exposure
16 effects, right?

17 A That is true, yes.

18 Q So essentially even though you had the data and you knew
19 that you could go in -- whoever did this study, I guess it's in
20 your book, but it's somebody else who did it.

21 Even though they had the data on these other media,
22 which we know, according to your approach, is equally likely to
23 cause increases in aggression, nobody went in to see whether or
24 not those variables had greater explanatory power or at least
25 reduced the perceived effect of video game violence?

Anderson - cross

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1 A That was true as of the time that I gave my deposition.

2 Since then Dr. Gentile has gone back and looked at those
3 results and essentially partialled out the effects of time one
4 television and film violence.

5 Q How about the professional wrestling?

6 A That was measured in a different way, so it wasn't a
7 comparable scale.

8 Q Is it fair to say that that meant that the perceived effect
9 of the video games went down further?

10 A It didn't. It stayed about the same.

11 Q Stayed about the same?

12 A Yes.

13 Q What was the effect size for violent television?

14 A The effect size for violent television was marginally
15 significant, about a .1 effect size. That's when you control
16 for violent video game exposure.

17 And the effect size for violent video games was about
18 .13, which was statistically significant.

19 Q And the effect size for video games that you initially
20 found is .19, right?

21 A Those are different kinds of analyses, but roughly
22 speaking. I mean, you are comparing the path analysis results
23 to the destructive testing analysis.

24 Q Which was it that Dr. Gentile did?

25 A He redid path analysis.

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1 Q Why didn't he use it in the destructive analysis?

2 A Pardon me?

3 Q Why didn't he use those variables in the destructive
4 analysis?

5 A They're essentially doing the same thing but not quite
6 identical in terms of controlling.

7 Q But you can't tell us if he had treated it the same way
8 that he treated the other variables like parental involvement
9 and hostile attribution bias and other things whether that
10 would have made the effect size for video games go away after
11 the destructive analysis?

12 A It would not have.

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1 Q You could tell us that sitting here today?

2 A I could tell you that with certainty.

3 Q But you didn't know that at the time of your deposition?

4 A Correct. I did not.

5 Q And as this book went to the publisher, nobody had bothered
6 to try to partial out the effects of TV and movie violence?

7 A When it went to the publisher for review, it had not,
8 right.

9 Q Now, I want to ask you a few questions, if I could,
10 Professor Anderson, about how the research relates to the
11 statute that we actually have in front of us. At the time of
12 your deposition, you actually hadn't read the statute, except
13 for the findings; is that right?

14 A That is correct.

15 Q Have you read it now?

16 A No.

17 Q Are you aware, for example, that the statute only regulates
18 access for people under 18?

19 A I have heard that, yes.

20 Q And the reality, though, is that the research that you've
21 done and others have done on video games does not support any
22 hypothesis that people under 18 are more vulnerable to these
23 effects you've been talking about than adults; is that right?

24 A Right. That is correct. In the video game literature,
25 there's not a clear age vulnerability, I guess, would be the

1 word I was looking for.

2 Q Yet earlier in your direct testimony when you were dealing
3 with Professor Williams' study, you said that because his
4 average age was 27, we wouldn't expect to see the kinds of
5 effects that you found in your two to six-month study because
6 that involved children. The reality is that the vulnerability
7 is the same.

8 A Lack of evidence of a vulnerability effect is not the same
9 as there being no vulnerability effect.

10 Q So, it may be that --

11 A There is, in fact, some evidence, fairly good evidence, in
12 the television violence literature that long term effects are
13 bigger for children than for older individuals. A lot of the
14 studies in the video game domain, I mean, where we're looking
15 at the shorter term effects, it's not clear to me that there
16 should be bigger effects on children than adults in a short
17 term context.

18 Q Such as a month or a three-month study?

19 A No. I'm talking about a one-hour study where we're dealing
20 with priming effects.

21 Q So, in the one-month context, turning back to Professor
22 Williams' study, the fact he had an average age of 27
23 doesn't -- there's no reason to think based on the research
24 that that population average would be less vulnerable to
25 effects than some other age?

1 A Not in the video game literature. In the television
2 literature there is.

3 Q Now, you also have set out in your research to try to
4 determine whether games that are more graphic and more
5 realistic have a greater impact than games that are more
6 cartoonish --

7 A Right.

8 Q -- more juvenile, right?

9 A Yes.

10 Q And, surprisingly, you found no difference at all, right?

11 A Correct. I mean, in terms of mean differences, there was a
12 slight hint, but not anywhere near, you know, statistical
13 significance.

14 Q Well, and the slight difference that you found that was
15 statistically insignificant was that the E-rated games, the
16 most childish cartoonish games, were more harmful than the
17 T-rated games, the more realistic and violent ones, right?

18 A Oh, I was thinking about a different study. I'm sorry.

19 Q Well, let's focus on the one I remember, which there was an
20 experiment in which you focused on --

21 A Yes.

22 Q -- teenagers' access. You did an experimental study.

23 A Right.

24 Q You had teenagers play little kid games and games like
25 James Bond, more T-rated games, right?

1 A Yes.

2 Q And you found that they became more violent on your
3 measures of aggression when they played the E-rated games than
4 the T-rated games, right?

5 A Yes, for that sample. Although, as you said, that wasn't a
6 statistically reliable difference. That is, the T violent
7 games versus the E violent games.

8 Q Right. And the E-rated games that showed up to be
9 marginally more harmful, although maybe not quite statistically
10 significant, those were games with like happy music and little
11 cartoony characters?

12 A Yes.

13 Q Now, you also set out to test -- I think you mentioned in
14 your direct testimony whether or not changing the nature of the
15 victims that you attack in your play from green-blooded aliens
16 to red-blooded humans might change the effect. I believe you
17 didn't give the answer, but the answer is there's no difference
18 at all, right?

19 A The answer is there was no statistically significant -- and
20 that's what I was just referring to a couple minutes ago.
21 There was a hint, but it was not close to significant.

22 Q So, there's no support in the research that you've done or
23 that you can report on video games for saying that games that
24 single out humanlike victims ought to be treated differently
25 from games that have alien victims?

1 A That is correct.

2 Q Now, you mentioned a couple of times that there are other
3 kinds of stimuli other than video games that can kind of
4 trigger this GAM model that you have, and I think you've
5 mentioned a couple times that just viewing a picture of a gun
6 can lead somebody in experimental research to be more
7 aggressive?

8 A Yes, that's true.

9 Q In fact, you did a study like that and published it, right?

10 A Yes.

11 Q And what that illustrates is that there are probably almost
12 an infinite number of stimuli that you could give somebody in
13 one of these experimental situations and show some immediate
14 priming of slightly more aggressive behavior in the aftermath,
15 right?

16 A Infinite is very big, but yes. Stimuli that are associated
17 with aggressive thinking.

18 Q Yes.

19 A It would be a very large number.

20 Q So, the fact that you have focused on video games is
21 largely a matter of your choice rather than some suggestion
22 that they're different from the large number of other things
23 that could have exactly the same effect in the experimental
24 context, right?

25 A Yes.

1 Q And just so we understand on these -- back to these
2 experiments for a moment. The differences that you're
3 calculating between those who watched Wolfenstein and those who
4 watched Myst -- or I mean played in each case -- are tiny
5 fractions of a second differentials in terms of how long they
6 push that button down on the noise blast?

7 A In that particular study, yes, it was a duration measure,
8 and it was a relatively small difference in terms of like
9 number of seconds or milliseconds.

10 Q Milliseconds, right?

11 A I assume so. I don't remember.

12 Q And, in fact, what you've done is you've studied both
13 intensity and duration at the same time a couple of times, and
14 in some studies the duration goes up, but the intensity
15 doesn't, and in other studies the intensity goes up, and the
16 duration doesn't at all, right?

17 A That has happened in a couple of studies, yes.

18 Q Now, is it fair to say, Professor, that you're a pretty
19 much outspoken critic of the video game industry?

20 A Yes, I would say that.

21 Q And you've actually criticized the industry for fighting
22 the passage of laws of the kind we're dealing with here today?

23 A Yes, you could characterize that.

24 Q And indeed if we look back at Exhibit 8, you've gone so far
25 as to advocate the passage of laws of the kind we're dealing

1 with here, have you not?

2 A I don't know that -- I mean, I've tried very hard to stay
3 out of giving my personal views about what the proper role is.

4 Q Let me ask you to look at Page 250 in Exhibit 8, the public
5 policy. This is the article where you set out to discuss the
6 public policy implications of your research, Exhibit 8?

7 A At what page?

8 Q 240.

9 A 240. Sure.

10 Q Just to finish the prefatory question, this is the article
11 where you set out to discuss the public policy implications of
12 your research?

13 A Yes. We wanted to list what some possible public policy
14 options might be.

15 Q And one of the options you discuss at Page 240 is legal
16 access restrictions?

17 A Yes.

18 Q And you say there that -- let me get my marked up version
19 of that. You say there, don't you, Professor, that legal
20 access restrictions of the kind we're dealing with here would
21 be both appropriate and feasible in the United States?

22 A Where are you referring to?

23 Q Well, let's start with there's a mention of United Kingdom,
24 Australia, Canada, Germany, and then you say, "Nonetheless,
25 this approach seems feasible in the United States for two

1 reasons," right?

2 A Yes.

3 Q And then you go on to say, "Legal precedent in the United
4 States has established that the government has an entirely
5 appropriate role in specific instances in limiting the
6 influence and activities to which children are exposed." Do
7 you see that?

8 A Yes.

9 Q And you go on to discuss the legal precedent that would
10 support such a law, arguing that the Ginsberg case supports the
11 constitutionality of such a law?

12 A Yes.

13 Q Then you go on at the top of the next column to say, "It's
14 important to note that this," meaning Ginsberg, "is not the
15 only legal precedent under which regulating access could be
16 legally defensible while still being sensitive to First
17 Amendment concerns." Do you see that?

18 A Yes.

19 Q And then you endorse as an excellent review this Law Review
20 article by Professor Saunders at Michigan State?

21 A Yes.

22 Q And he's the fellow who wrote the book called Saving Our
23 Children from the First Amendment?

24 A Yes, he is.

25 Q One thing I wanted to just catch up on before we finish

1 here, Professor, is on your discussion of Professor Williams'
2 article.

3 I think you said something about how he had brought in
4 a lot of gamers to be the subjects. Isn't it, in fact, true
5 that he made a very careful effort to ensure that a large
6 percentage of the people on both the control side and on the
7 treatment side were people that had never played games before?

8 A I think he made a lot of effort to be sure that they had
9 not played role -- these massively multiplayer online
10 role-playing games.

11 Q Well, the exhibit will speak for itself, Professor, but you
12 don't remember him indicating in the exhibit that a significant
13 percentage of the people in the test had never played any games
14 at all?

15 A I don't remember that.

16 Q You also focused on his measures of aggression and focused
17 on this arguments with partners or girlfriends or boyfriends or
18 whatever. He had a whole range of measures of aggression that
19 he used in there; isn't that right?

20 A Not in his published article.

21 Q Don't you remember seeing the reference to the normative --
22 what's it called -- the normative beliefs in the aggression
23 scale?

24 A Yes, but that's not a measure of aggression.

25 Q What would you call that?

1 A It's aggressive cognition.

2 Q So, what you were saying here is that he didn't use very
3 good measures of aggression, but he might have done a pretty
4 good job in measuring aggressive cognition and how it changed
5 over the month?

6 A That could be. I don't remember much about that particular
7 scale.

8 Q Certainly you have measured aggressive cognition changes in
9 much of your work, right?

10 A Yes.

11 Q And the fact that he found no change in aggressive
12 cognition over the period of a month would be pretty
13 significant, would it not?

14 A Not given the way that that study was conducted.

15 Q Now, a couple of other things, Professor. One is you have
16 on your website a discussion of the video game industry in
17 which you make the point that because the video game industry
18 is owned by media conglomerates, the media have suppressed the
19 truth about the research on video games; is that right?

20 A I think we've implied that. I'm not sure we state it quite
21 as volatilely as that, but it might have been. I just don't
22 remember.

23 Q Certainly you intended to imply that in what you have on
24 your website, right?

25 A Pardon me?

1 Q You certainly intended to imply that in what you put on
2 your website?

3 A Well, one of the things that we've discussed in several
4 publications, and I don't remember exactly where and whatnot,
5 is that there certainly can be multiple reasons why an industry
6 would object to or contradict research that they think might
7 not look favorably upon them. You know, one reason might be
8 something as simple as economic self-interest.

9 Q You don't have any evidence of that, though, do you?

10 A No.

11 Q And the reality is that another reason might be that
12 there's a much greater controversy about this among the
13 professionals in your field and related fields than you would
14 like to let on; isn't that right?

15 A Pardon me?

16 Q There's a much greater controversy about the validity of
17 your studies and your conclusions than you like to let on,
18 isn't there?

19 A Not within the scientific research community, no.

20 Q And those social scientists who disagree with you, are they
21 outside the scientific research community?

22 A They're very much in the minority in terms of their views
23 about media violence effects.

24 Q And have you reviewed Dr. Goldstein's declaration in this
25 case?

1 A Yes.

2 Q And he lists there a whole range of people who criticize
3 fundamentally everything that you do in your research, don't
4 they?

5 A He has an interesting and unique set of criticisms.

6 Q Well, and he's not just offering his own. He's pointing to
7 any number of other scholars around the world who find this
8 entire method of study is inapt and inappropriate, right?

9 A Well, he can cite some. I mean, without rereading his
10 entire deposition, it would be hard to comment specifically on
11 it, but, in fact, the major critics of the conclusions that
12 media violence researchers have come to have not actually
13 conducted original empirical research and are not seen in the
14 psychological community, certainly, as truly understanding how
15 to do such research and what the research implications are of
16 existing studies.

17 Q Well, Dr. Goldstein has conducted original research and is
18 a social psychologist just like you, is he not?

19 A He has never conducted original research on media violence.

20 Q Have you ever read his depositions in these cases where you
21 and he testify against each other?

22 A I have looked over his entire publication record.

23 Q But the answer to my question is you haven't read the
24 deposition?

25 A Pardon me?

1 Q The answer is you haven't read the deposition?

2 A I have read the deposition.

3 Q And you don't recall references there to the fact that he
4 did original research on media effects on aggression?

5 A No. Do you have a specific --

6 Q No. I'm just asking you. You don't recall that.

7 A No, I don't recall that.

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

9 THE COURT: Redirect?

10 MR. KASPER: No further questions, your Honor.

11 THE COURT: I have a few, and I suspect that some of
12 these -- I was noting them as I went along. I suspect that
13 some of these ended up getting answered in later questions.
14 So, I may be asking you to repeat something. Please excuse
15 that.

16 MR. SMITH: Your Honor, perhaps before -- I'm sorry to
17 interrupt you like that. I intended to offer as exhibits the
18 two portions of the Justice Department websites which summarize
19 crime rates in the last 12 years that I was --

20 THE COURT: Do you have any objection to these?

21 MR. KASPER: No. No objection.

22 THE COURT: What are the numbers?

23 MR. SMITH: They are Plaintiffs' Exhibits 5 and 6,
24 your Honor.

25 THE COURT: They're admitted. Just give them to my

1 law clerk.

2 All right. I wanted to go back to something you
3 talked about yesterday, and I wanted to make sure I heard it
4 right; although, I think you repeated it this morning at the
5 beginning of your testimony. It had to do with your
6 explanation of this concept of priming, and I think you said
7 that something as, I guess I would say, inconsequential as
8 seeing a photograph of a gun could actually prime aggressive
9 thoughts in a person. Did I hear you right on that?

10 THE WITNESS: Yes.

11 THE COURT: Explain that to me. How does that work?

12 THE WITNESS: The most current models of human memory
13 think of memory -- by memory, I'm including understanding
14 concepts, words, you know, not just memory for events. Okay?
15 (Continuing) -- as a series or as a system of nodes that are
16 interconnected, that are linked in some fashion.

17 And so, one might have a node that in some sense
18 represents the concept of gun, and one might have a node that
19 represent a concept of killing or of harming. And these nodes
20 themselves, the idea is that they get linked to each other in a
21 couple of ways. Nodes that are -- or concepts that are very
22 similar in meaning are thought of as kind of being close to
23 each other. And this is all sort of by analogy. It's not like
24 one thinks that there's, you know, six particular neurons
25 that --

1 THE COURT: I understand.

2 THE WITNESS: Okay. And the second way that nodes or
3 concepts can be highly associated is if they are thought about
4 at about the same point in time, if they're thought about in
5 conjunction with each other alot. The more often a particular
6 pair of concepts are paired with each other, the stronger the
7 linkage is between those concepts.

8 And so, the idea of priming is that if one concept is
9 activated -- for example, by seeing a photo of a gun makes you
10 sort of activate that concept of gun in your mind, that nodes
11 that are closely linked to it, in essence, get a little bit of
12 the energy that goes into that gun concept. It's called
13 spreading activation. So that this -- again, so if you
14 activate or think about a gun, some of that energy or that
15 activation spreads out along these linkages to related
16 concepts. And so, I mean -- and this is a common model.

17 THE COURT: Are there studies that suggest that
18 something like seeing pictures not of somebody committing
19 violence, but of an implement that might be used in doing that
20 is enough to cause the same or similar kinds of effects that
21 you've talked about here with violent video games?

22 THE WITNESS: There are studies, both field
23 experiments and laboratory experiments, that show such effects.

24 THE COURT: Okay.

25 THE WITNESS: I'd also point out that one of the

1 things that we've done is --

2 THE COURT: You need to talk louder because you're
3 talking to me now, and they're not hearing you, probably.

4 THE WITNESS: I'm sorry. One of the things that we've
5 done, some colleagues of mine and I have done, in the last
6 couple of years is to look at life experiences with guns to see
7 how that might change how one thinks of guns and then in turn
8 to see whether that has an impact on what commonly is called
9 this weapons priming effect. So, we've looked at hunters
10 versus nonhunters. The idea that hunters think of hunting
11 weapons, at least, not so much as instruments of killing
12 people, but they might tend to associate it with more like
13 family, going out hunting with dad, growing up, like those
14 sorts of things. And, in fact, that's what our results tend to
15 show, that hunters, when you show them a picture of a hunting
16 gun, you don't get this same kind of effect that you do with
17 nonhunters.

18 THE COURT: Okay. You were talking about these
19 experimental studies where the measure -- and I know I'm using
20 the wrong terminology here, but the measure was the noise
21 blast.

22 THE WITNESS: The noise blast.

23 THE COURT: The noise blast thing. And as I
24 understand it, what the people in those studies are typically
25 told is that they're actually noise blasting another person

1 they might be playing against or something like that, but they
2 don't see the person.

3 THE WITNESS: Correct.

4 THE COURT: Is there some reason to think that
5 somebody's willingness to noise blast some anonymous person
6 that they can't see somehow translates into a willingness or a
7 greater inclination to do harm to an actual person that they
8 can see?

9 THE WITNESS: There certainly are studies suggesting
10 that this whole sort of punishment reaction time paradigm is a
11 valid measure of aggression in that people who are generally
12 sort of identified as being more aggressive versus less
13 aggressive behave very differently in those tasks. Variables
14 that influence a sort of real world aggression also have the
15 same kind of effect in the laboratory tasks. And so, there's
16 all that kind of evidence, basically, that the task is a valid
17 task.

18 THE COURT: But I gather -- at least my sense from
19 listening to you is that there aren't as many studies that
20 measure whether somebody actually went out and did something to
21 somebody else physically.

22 THE WITNESS: Some of the children's studies have done
23 that.

24 THE COURT: Okay.

25 THE WITNESS: There's a study by Irwin and Gross, if I

1 remember right, where they had children playing either a
2 violent or nonviolent video game and then later observed them,
3 I believe on a playground, although it may have been, you know,
4 like in a free-play situation indoors. I don't remember.

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1 THE COURT: I recall somebody saying something. It
2 may have been somebody yesterday.

3 THE WITNESS: They had measures of kicking and hitting
4 and punching.

5 They had -- as I recall, they actually had measures
6 both of aggression, what they call aggression against another
7 person, as well as aggression, what they called aggression
8 against objects.

9 THE COURT: Objects, like kicking something.

10 THE WITNESS: Yes, and we have sort of separated those
11 out because we are primarily more interested in the aggression
12 against other people, and you get that kind of an effect.

13 THE COURT: This morning when you were discussing -- I
14 don't know the word that was used -- the critique of --
15 actually your critique of Professor Williams' critique, okay.
16 You were talking about the reliability issue, and there was a
17 question and, honestly, I am just going to tell you, I didn't
18 get it, okay. So I need you to explain it a little bit better.
19 There was something about a factor of .68 which you said was
20 considered acceptable, but it would be nice if it was bigger.
21 I need you to walk me through that again.

22 THE WITNESS: Okay. Any measurement has a certain
23 element of error in it. So in any science, in any measurement,
24 whatever you can do to reduce that element of error in essence
25 gives you more power to detect whatever kind of underlying

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1 phenomenon might be there, in essence, sort of like having a
2 better microscope or something.

3 This reliability measure is actually an internal
4 reliability measure. There's other forms of reliability out
5 there, but those weren't discussed today or yesterday, as far
6 as I know.

7 Internal reliability measure is typically used when
8 you have multiple items on some kind of a scale, that each item
9 is designed to measure sort of the same thing but in a slightly
10 different way. And in basically test theory what you really
11 want is a set of items that correlate pretty well with each
12 other, so that a person who gives a 5 on item one will tend to
13 give, you know, a similar answer on other items that, again,
14 are supposedly measuring the same kind of thing.

15 And what a reliability measure is, this coefficient
16 alpha, conceptually what it is is if you, say, have a ten-item
17 scale, you can take item one and correlate it with the average
18 of the other nine and you get some number. You can take item
19 two and correlate it.

20 THE COURT: Now I get it.

21 THE WITNESS: Eventually you can sort of average
22 those.

23 THE COURT: You average those out, and that is where
24 you get to the figure that ended up as .68.

25 THE WITNESS: Yes, although it is not exactly that,

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1 but conceptually that is what that is.

2 THE COURT: All right. When you say it would be nice
3 if it was bigger, how much bigger would be better, I suppose?

4 THE WITNESS: Well, ideally you would want things to
5 be in the 90s.

6 THE COURT: Okay, ideal is in the 90s. That tells me
7 what I need to know.

8 THE WITNESS: If you get bigger maybe --

9 THE COURT: Go ahead.

10 THE WITNESS: If you get bigger than that, then you
11 have wasted time on items you didn't really need.

12 THE COURT: Okay, fair enough.

13 THE WITNESS: One way you improve reliability is by
14 adding more items.

15 THE COURT: I may just not have caught this, but in
16 the last or second to the last question that Mr. Kasper had
17 asked you, basically sort of summing up your opinion, and your
18 opinion -- I am leaving out some of it -- was that exposure to
19 violent video games, and I got down, "increases aggressive
20 thoughts and affect."

21 Did I also hear you say, because if I did, I didn't
22 catch it, that it increases actual physical aggression? Is
23 that part of your opinion as well?

24 THE WITNESS: Yes.

25 THE COURT: Yes, okay. I thought that was the case,

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1 but I didn't think I had it in my notes.

2 One more question about these figures. When Mr. Smith
3 was questioning you, he asked you about the study that had the
4 .2 correlation. And, see, now I am getting a blank stare,
5 which means I am using the wrong terminology. There was
6 something that was a .2 that translated to 4 percent?

7 THE WITNESS: Right.

8 THE COURT: Do you know what I am talking about?

9 THE WITNESS: Yes, I think he was talking about
10 average effect sizes.

11 THE COURT: Yes, that is it. Explain that to me
12 again.

13 THE WITNESS: When you do --

14 THE COURT: .2 of what, I guess?

15 THE WITNESS: .2 here is a measure of effect size.
16 Actually there are a number of different measures of effect
17 size. We have all been focusing on one specific one called
18 correlation.

19 THE COURT: Okay.

20 THE WITNESS: Those can be translated into others, and
21 it all has the same meaning.

22 A correlation effect size can range from minus one to
23 plus one.

24 THE COURT: That I got.

25 THE WITNESS: Okay. That's right, we just did that.

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1 THE COURT: And plus one would be if the two factors
2 essentially move together.

3 THE WITNESS: Right, perfectly lockstep.

4 THE COURT: Lockstep, and minus one would be if they
5 moved in opposite directions or didn't do it together.

6 THE WITNESS: Yes, if they moved in opposite
7 directions.

8 THE COURT: Zero would be if there is --

9 THE WITNESS: Just random.

10 THE COURT: Random, okay.

11 So what is a .2? What does that tell you? I get
12 where it is on the scale, but what is that? They move together
13 20 percent of the time? I mean, how would I translate it, in
14 other words?

15 THE WITNESS: No. If you --

16 Let's say you have a measure of anything, and let's
17 just say it's aggressive behavior. So you have got a hundred
18 participants, each of whom has a score, and you can plot those
19 scores. And you just -- you know, some are low, some are
20 middle, some are high. You have got this mess of data points,
21 okay.

22 If one calculates the average score, and then -- that
23 is called the mean.

24 THE COURT: Yes.

25 THE WITNESS: The average score.

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1 Then for each participant you take their score,
2 subtract it from the mean, square it, that eliminates plus and
3 minus signs.

4 THE COURT: Okay.

5 THE WITNESS: And then some of those 100 square
6 deviation scores essentially, you get a measure that is called
7 the variance of that measure.

8 A .2 correlation essentially means that knowing the
9 person's score on some other variable, in this case let's say
10 violent video game exposure, allows you to account for 4
11 percent of that variance.

12 THE COURT: Got it. Now I understand it. I am going
13 to suggest that at new judge school they put in a statistics
14 course. Of course, I probably would have forgotten it by now.

15 THE WITNESS: Yes. If you don't use it every day, it
16 goes.

17 THE COURT: You have now just explained to me why it
18 is that when my daughter got to a statistics class in high
19 school, I stopped being able to help her with the math.

20 Okay. Just a second. I am just taking a note here.

21 THE WITNESS: You have learned in 30 seconds what my
22 students take a whole semester --

23 THE COURT: Well, but they may actually retain it
24 longer than I do. On the other hand, they probably have to
25 because I don't have to wait until the end of the semester to

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1 be tested on it.

2 I am actually now not talking just about violent video
3 games, violent media generally. Is there any study that
4 suggests that the context of the violence is at all
5 significant?

6 In other words, compare, for example, like what's the
7 Tom Cruise about the D-Day invasion which has this horribly
8 violent scene that goes on for about half an hour at the
9 beginning of it with, let's say, you know, a Van Damme movie
10 where everybody is just kind of beating the heck out of each
11 other all the time? Is there anything that suggests the
12 context in which you see it is at all significant?

13 THE WITNESS: Yes, there are studies, especially in
14 t.v. literature suggesting things such as --

15 And these aren't as solid as the basic findings.

16 THE COURT: I understand.

17 THE WITNESS: But suggesting that rewarding aggression
18 in the film, showing characters being rewarded, can increase
19 the effect versus punishing can reduce it.

20 What other kinds of context effects are out there?
21 There is also some research -- actually even some research in
22 the video game area, as well as the t.v. area, that if parents
23 -- it's called mediate. If parents discuss issues of violence
24 and what is in the media that they are consuming and basically
25 talk about these kind of issues and point out how these are not

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1 appropriate solutions in the real world context and so on, that
2 that can reduce the media violence effect.

3 Just simply watching it with them presumably doesn't
4 help, but actually discussing this whole issue of how does one
5 really resolve conflict in the real world as opposed to the
6 television world.

7 THE COURT: All right, then the last question, and I
8 don't say this to make light of anything that you have said
9 here, but there was one thing in this book chapter that really
10 kind of caught my eye. I am just going read it here:

11 "In a study of college students, playing a golf video
12 game improves student's actual control of force when putting
13 even though the video game gave no physical feedback on that
14 student's actual putting movement or force."

15 When you say "actual control of force when putting,"
16 do you mean -- does this talk about playing the video game
17 improving your actual putting when you are playing real golf?

18 THE WITNESS: Yes.

19 THE COURT: Can you tell me what video game that is so
20 I can go out and buy it this afternoon? Maybe I will just
21 recess the hearing and go get it right now.

22 THE WITNESS: I apologize, but my coauthor wrote that
23 part.

24 THE COURT: Okay, I will find that one. You cited the
25 article.

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1 Again, not to make light of it, but that really kind
2 of caught my attention. If there is something I can do to
3 reduce the number of three-putt greens, I think I'd be for it.

4 THE WITNESS: Well, it certainly is the case then that
5 video games are good teachers. So there are lots of
6 interesting studies out there showing improvements in --

7 THE COURT: I notice there was a further discussion in
8 here of it actually.

9 All right, do you have any further questions based on
10 the questions I asked?

11 MR. SMITH: No, your Honor.

12 THE COURT: Do you?

13 MR. KASPER: No, your Honor.

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

15 (Witness excused.)

16 THE COURT: Do you have another witness? Yes, no?

17 MS. FALLOW: Yes, your Honor.

18 THE COURT: Let's see. We have been going about an
19 hour. Let's take a 10-minute break and then we will start
20 back.

21 Is this the last one, the last live person?

22 MR. SMITH: Yes.

23 MS. FALLOW: Yes.

24 (Brief recess.)

25 THE COURT: Do you have the next witness in the room?

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1 MS. FALLOW: Yes, it's Howard Nusbaum.

2 (Witness sworn.)

3 HOWARD CHARLES NUSBAUM, PLAINTIFFS' WITNESS

4 DULY SWORN

5 DIRECT EXAMINATION

6 BY MS. FALLOW:

7 Q Professor Nusbaum, can you state your full name for the
8 record, please?

9 A Howard Charles Nusbaum.

10 THE REPORTER: Please spell your last name.

11 THE WITNESS: N-u-s-b-a-u-m.

12 BY MS. FALLOW:

13 Q And where are you currently employed?

14 A University of Chicago. I am the chair of the psychology
15 department, the University of Chicago.

16 I have an appointment as a professor in the Department
17 of Psychology, in the Committee on Computational Neuroscience,
18 and I have membership in the Center for Integrated Neuroscience
19 and Neuroengineering. And I am a member of the advisory board
20 for the Brain Research Imaging Center.

21 Q How long have you been chair of the Department of
22 Psychology?

23 A Since 1997.

24 Q And what courses do you teach?

25 A I teach a variety of courses in cognition and cognitive

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1 neuroscience, so courses in language processing, attention,
2 learning and memory, cognitive neuroscience, which I am
3 teaching currently, research methods in cognitive neuroscience,
4 and I participate in an fMRI research methods course.

5 Q I think you mentioned that you were a member of the
6 Committee on Computational Neuroscience?

7 A Yes.

8 Q And are you involved in any other way in brain imaging at
9 the University of Chicago?

10 A Yes. The current Brain Research Imaging Center, which was
11 established about six years ago roughly, was set up in
12 collaboration with my department, with me as the
13 representative, to establish a basic research imaging center
14 that would allow psychologists, neurologists, psychiatrists and
15 neuroscientists to do imaging research.

16 We participated in the process of hiring the director
17 and participated in financial planning.

18 Q With respect to your areas of research, are you involved in
19 any journals?

20 A Yes. I am on the editorial board currently for Brain and
21 Language. I serve as an ad hoc reviewer for a number of
22 journals such as Nature, Nature Neuroscience, the Journal of
23 Cognitive Neuroscience, Cognition, Brain and Neuroscience,
24 Neurons, Cerebral Cortex, and others I can't remember.

25 Q Have you published in the area of cognitive neuroscience?

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1 A Yes. I have published a couple of studies having to do
2 with spoken language processing and the cortical mechanisms
3 underlying the process of language comprehension.

4 And, in addition, I have published several articles
5 that are, shall we say, methodological issues regarding how to
6 do and interpret fMRI research.

7 Q Just stepping back a bit, you have done --

8 Have you done any research in fMRI?

9 A Yes. I have done research involving how it is listeners
10 shift attention between talkers, trying to understand which
11 parts of the brain are involved in that process of changing
12 attention from one person to another.

13 I have done research published in Neuroimage on how
14 seeing a person's face affects your perception of speech in
15 terms of recruiting motor cortex as part of the comprehension
16 process.

17 Q I think you mentioned that you have published some pieces
18 on how to do fMRI studies, is that correct?

19 A Correct. We were -- I am sorry.

20 Q Can you just elaborate generally on what those pieces say?

21 A We were invited to write a commentary on a piece in the
22 area of neuroeconomics that was published in the proceedings of
23 the National Academy of Sciences. That was with John
24 Caccioppo.

25 In that study, we looked at the brain areas that were

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1 involved in making risky decisions or not risky decisions, a
2 kind of gambling task and, shall we say, provided a little
3 corrective guidance to the interpretation of the results that
4 were reported by the original study.

5 Following that we published a paper -- Steve Small and
6 I published a paper in Brain and Language where we provide
7 theoretic guidance on the problem of understanding language in
8 the brain and natural behavior in context in fMRI research.
9 And John Caccioppo and I and a large number of other
10 collaborators published a paper in the Journal of Personality
11 and Social Psychology as guidance for social psychologists on
12 how to understand and carry out fMRI research.

13 Q Are those publications listed in your CV?

14 A They are.

15 Q Did you submit a CV to this Court attached to your
16 declaration?

17 A Yes.

18 MS. FALLOW: Your Honor, I am going to mark this as
19 Plaintiffs' Exhibit 7.

20 THE COURT: You don't need to give it back to me. I
21 have got it. Exhibit how many?

22 MS. FALLOW: 7.

23 THE COURT: 7, that is admitted.

24 BY MS. FALLOW:

25 Q I am going to hand you this. Is this a current copy of

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1 your CV?

2 A I believe reasonably current.

3 Q Dr. Nusbaum, are you a clinical psychologist?

4 A No. I'm a cognitive psychologist.

5 Q Can you just explain generally what the difference is
6 between a clinical psychologist and a cognitive psychologist?

7 A Well, clinical psychologists deal with the diagnosis and
8 treatment of mental illness.

9 When they do research, it's typically into the area of
10 psychopathology or the effectiveness of therapy.

11 I'm a cognitive psychologist. I study mechanisms of
12 learning, memory, attention, interpersonal communication, and
13 the evaluation of information, affect of information.

14 Q In general are you in the area of basic science versus
15 clinical treatment? Is there a difference between that?

16 A I don't do clinical treatment. I am not trained in
17 providing therapy. I do basic research trying to understand
18 sort of the fundamental psychological processes by which we
19 understand each other as speech perceivers, speech producers,
20 and the brain mechanisms that are involved in that process.

21 Q Professor Nusbaum, what were you asked do in your capacity
22 as an expert for the plaintiffs in this case?

23 A I was asked to review -- I think it's Section 12-5 -- the
24 findings with respect to the violent video game law, and
25 specifically with respect to the third part of the findings

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1 having to do with frontal lobe function, executive function as
2 represented in Dr. Kronenberger's team's research.

3 Q I am just going to show you what has been already marked as
4 Plaintiffs' Exhibit 2.

5 MS. FALLOW: This is the copy of the law, your Honor.

6 BY MS. FALLOW:

7 Q When you say you were asked to review the finding
8 12-A-5-A-3 --

9 If you look, is it that one?

10 A Yes.

11 Q -- having to do with the general assembly, finds that
12 minors who play violent video games are more likely to
13 experience a reduction of activity in the frontal lobes of the
14 brain which is responsible for controlling behavior?

15 A Yes, I was asked to review that in the research.

16 Q What is your opinion of that finding?

17 A I don't believe that there is any research supporting that
18 claim. I was actually surprised to see it because it is not
19 even qualified in respect of the research that could possibly
20 be used to support it.

21 It's an unequivocal statement that the frontal lobes
22 control behavior. That's not an accurate scientific statement.
23 It's an unequivocal statement that playing a violent video game
24 reduces frontal lobe activity. That's not well-supported by
25 any research.

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1 Q You mentioned that you were asked to review both the
2 findings and also Dr. Kronenberger's research as a basis for
3 that finding, is that right?

4 A That is correct.

5 Q Do you have an opinion about whether Dr. Kronenberger's
6 research supports this finding?

7 A I do. I don't believe it does support the finding.

8 Across the four studies that are most relevant, the
9 Journal in Clinical Psychology, executive functioning study and
10 the three fMRI studies, there is certainly no evidence within
11 those studies that I think supports this --

12 Q Finding?

13 A -- this finding. Sorry.

14 Q And you were here yesterday during Dr. Kronenberger's
15 testimony, is that right?

16 A That is correct.

17 Q Or part of it at least?

18 A Yes.

19 Q You left at lunch time?

20 A Yes.

21 Q And Dr. Kronenberger said that his research was also
22 building upon the research of Dr. Anderson and others showing a
23 causal conclusion -- I mean, causal connection between violent
24 media and aggressive behavior, is that right?

25 A Yes.

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1 Q Do you have an opinion on that?

2 A Well, I have not read all of the research cited by
3 Professor Anderson. I have read the papers that
4 Dr. Kronenberger cites. I would say they are not compelling.
5 I am not convinced by those studies, Anderson and Dill, the
6 Bushman and Anderson work, that the case is particularly
7 strong, that playing violent video games produces aggressive
8 thoughts, behavior or feelings.

9 Q And, Professor Nusbaum, did you submit a declaration in
10 this case?

11 A I did.

12 Q Again, I am marking this as Plaintiffs' Exhibit 8.

13 MS. FALLOW: I gather you don't need a copy?

14 THE COURT: I don't.

15 BY MS. FALLOW:

16 Q Is this the declaration that you submitted in this case?

17 A Yes.

18 Q Now, you have stated that you don't believe that
19 Dr. Kronenberger's research supports the finding. I would just
20 like to --

21 Can you just explain sort of in terms of general
22 categories? I take it you have some criticisms of
23 Dr. Kronenberger's research, is that right?

24 A Yes. Essentially I have problems with the background
25 assumptions of the work, where it starts from, the methodology

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1 that is represented in the work and the conclusions that are
2 drawn.

3 Q All right. I would like to go through these one by one.

4 Starting with the first category of background
5 assumptions, can a particular pattern of brain activity predict
6 behavior?

7 A No. There is a many-to-many relationship between brain
8 activity and behavior. So you can see for any particular brain
9 activity multiple possible behaviors. For any particular
10 behavior, there may be many possible brain activity patterns.
11 So there is a many-to-many relationship between them.

12 Q And can you draw causal conclusions about behavior from
13 observing a particular pattern of brain activity?

14 A Not to date. The technology and our understanding of the
15 brain is not to the point where you could make that prediction,
16 and I am dubious that it ever could get to that point because
17 of the fundamental many-to-many relationship between brain and
18 behavior.

19 Q So what do you see as the relationship between patterns of
20 brain activity and a particular behavior?

21 A Well, there is a correlation between behavior and brain
22 activity.

23 So there are many different behaviors that can result
24 in different patterns of brain activity. Some of those change
25 as a function of context. And it's useful in service of trying

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1 to understand how the brain functions in any particular
2 experiment or any particular task to a degree, but it is not
3 particularly dispositive of what a person is going to do if
4 there is a change in brain activity in one particular region.

5 Q Do you believe that Dr. Kronenberger is suggesting that a
6 particular pattern of brain activity can be used to predict
7 behavior?

8 A Well, Dr. Kronenberger seems to be suggesting a bunch of
9 things. One of those is that a reduction in brain activity
10 represents a kind of functional deficit.

11 Another is that a composite pattern of brain activity,
12 an increase in arousal in one part of the brain, a decrease in
13 arousal in another part of the brain would predict a propensity
14 to aggression, largely by comparison to a model that Richard
15 Davidson proposed in a science paper, and by comparison more
16 generally or vaguely to a group of kids that he has diagnosed
17 as disruptive behavior disorder.

18 Q I am going to address some of the things that you just
19 talked about. I am actually going to show you --

20 MS. FALLOW: Actually, your Honor, I was going to have
21 in front of him Defendants' Exhibits 1, 2 and 3, which is
22 Dr. Kronenberger's material essentially.

23 THE COURT: Okay.

24 BY MS. FALLOW:

25 Q Professor Nusbaum, you reviewed Dr. Kronenberger's

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1 declaration in giving your opinion in this case, is that right?

2 A Yes, I did.

3 Q If you just look at page 6 of Dr. Kronenberger's
4 declaration, specifically paragraph 16, Dr. Kronenberger talks
5 about -- makes some general statements about the frontal lobes
6 of the brain.

7 I just want to ask you: Are the frontal lobes
8 associated with these functions or functions other than the
9 ones he lists such as impulse, control, self-regulation,
10 choice, attention and concentration?

11 A The frontal lobes is huge territory in the brain. So it's
12 everything in front of what is called the central sulcus. It's
13 right about here. That whole part of the brain is the frontal
14 lobes.

15 There's lots of stuff going on in the frontal lobes.
16 So they don't do any one thing at all. And there is no one
17 behavior which is probably uniquely controlled by any single
18 part of the brain. So, no, I don't agree with that.

19 Q So in addition to that the frontal lobes might be involved
20 in other functions than what he lists, are other parts of the
21 brain involved in some of these functions?

22 A Yes, sorry. That is what I was trying to say is that
23 although the frontal lobes are implicated in attention, for
24 example, the parietal lobes, the thalamus, the superior
25 colliculus, which are subcortical structures in the brain stem,

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1 are also involved in attention.

2 So any particular complex behavior that humans have,
3 you're not going to find one particular spot in the brain that
4 does just that, and any particular spot in the brain probably
5 participates in lots of complex behaviors.

6 Q In paragraph 17 of his declaration, you sort of brought
7 this up. He talks about a reduced activation of certain
8 regions in the frontal lobes has been associated with greater
9 impulsivity, difficulties in concentration and so forth.

10 Just as an initial matter, what does it mean to
11 observe a reduced activation in certain regions in the frontal
12 lobes?

13 A Well, in any particular research study where you have
14 collected fMRI data, every part of the brain is typically
15 active. So it is very difficult to see what is going on.

16 In order to make assessment about a relative reduction
17 or a reduction in activity, it's always by comparison to
18 another condition. So in one condition, there may be more
19 activity; in another condition, there may be less activity; and
20 it's under those circumstances that the reduction is inferred
21 by that comparison.

22 Q And from Dr. Kronenberger's testimony, he also talks about
23 observing reduced activity comparing one group to another, is
24 that right?

25 A Yes. That is a little bit more questionable in the sense

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1 that different people's brains have different states of
2 activation, and different groups may have different chronic
3 activation states, and so it becomes difficult to actually
4 compare between groups. It's done, but that is a trickier kind
5 of comparison.

6 Q In your opinion -- I think you may have alluded to this --
7 but does reduced activity in the frontal lobes always signal an
8 impairment or a deficit?

9 A No. It can signal expertise, for example. If you develop
10 expertise in a particular kind of task, for example, a certain
11 kind of attentional task like looking for a stimulus coming up
12 on a screen and you do that in conjunction with something else,
13 you might see a reduction in activity as you develop what is
14 called automaticity.

15 So automaticity refers to the case where, in
16 performing a task over and over again, you develop a great
17 facility with it. So, for example, in playing tennis, the
18 first time you hit a ground stroke, you might think about every
19 single part of the ground stroke. But once you get facility
20 with that ground stroke, then you just look at the ball and try
21 to move your body into the place where you hit the ball. You
22 stop paying attention to the complement parts.

23 That kind of expertise in other kinds of studies is
24 accompanied by a reduction in activity in the brain, and in
25 attentional studies where expertise is developed, there is a

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1 reduction in the frontal lobes, reflecting increased cortical
2 efficiency of processing.

3 Q Just one thing. While you are testifying, if you can try
4 to slow it down just a little bit so that the court reporter --
5 you are saying a lot of terms that she may -- well, I assume
6 she knows everything, but, anyway, just to make it easier for
7 her.

8 THE COURT: Since she just criticized you, I do want
9 to thank you for not taking that example back to putting. It
10 would have struck a little too close to home.

11 THE WITNESS: Then I won't bring up the LPGA study.

12 THE COURT: There you go.

13 THE WITNESS: Okay.

14 BY MS. FALLOW:

15 Q Actually is there a study involving golfing and expertise?

16 THE COURT: You had to do it. It's all right. I want
17 to hear it.

18 That's fine.

19 THE WITNESS: My colleague, Steve Small, has tested
20 members of the LPGA, or professional golfers, against novice
21 golfers. They show a picture of a green or something. Maybe
22 it's a fairway. I don't know the parts. And you have to put
23 yourself into the zone. In the process of putting yourself in
24 the zone, these people are lying in a scanner and their brain
25 activity is being recorded.

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1 What happens is that when you look at the professional
2 golfers, they show significantly less cortical activity. They
3 show less amygdala activity. They show less prefrontal
4 activity than the novice golfers who basically light up like a
5 Christmas tree.

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1 BY MS. FALLOW:

2 Q Okay. And then in paragraph 18 of his declaration -- you
3 also sort of talked about this -- Dr. Kronenberger describes
4 this particular pattern of underactivity of what he calls brain
5 inhibitory mechanisms in the frontal cortex coupled with
6 hyperarousal of the amygdala and temporal lobe regions, which
7 he posits as responsible for chronic explosive and/or severe
8 aggressive behavior. In your opinion can this pattern of
9 activity be used as a diagnosis of behavior?

10 A No. I don't think any particular pattern of brain activity
11 can be used as a diagnosis of behavior. New York Times Science
12 Times had an article in the front page about this a month or so
13 ago. In this particular instance, the pattern that
14 Dr. Kronenberger is referring to is taken from a description in
15 a study by Richard Davidson published in Science, but Richard
16 Davidson has also described depressives as having the same kind
17 of brain activity pattern in general.

18 So, you could see that brain activity pattern and not
19 decide is this person depressed or aggressive, or you could
20 actually set up circumstances that might produce that pattern
21 of brain activity in an experiment, and that would not lead to
22 any particular behavioral outcome.

23 Q The same pattern of activity as described here.

24 A Exactly. It's also difficult to interpret the term
25 hyperarousal. It sort of suggests that there's an absolute

1 level of arousal followed by a larger level of arousal.

2 Because the statement is made with respect to
3 individuals who have presumably chronic levels of activity, one
4 can't really say what hyperarousal is. There's no absolute
5 standard. So, the measure that one gets off of an fMRI
6 neuroimaging system is an arbitrary scale. And so,
7 hyperarousal is really not a meaningful term.

8 Q Now, let's just turn to some of the methodological
9 criticisms you have of Dr. Kronenberger's research. In your
10 opinion, is it possible to draw a valid inference from
11 Dr. Kronenberger's research about the effect of violent video
12 games, as opposed to other kinds of violent media?

13 A Because the measures that Dr. Kronenberger uses conflate
14 exposure to both and don't separate out the specific exposure
15 to violent video games, no.

16 Q And what about Dr. Kronenberger's suggestion that he has
17 found a correlation that teens who watch violent television are
18 also more likely to watch violent video games? Would that
19 support an inference from this research about the specific
20 effect of violent video games?

21 A Well, that supports an inference about the teen's behavior
22 with respect to watching video. It doesn't tell you which of
23 those two activities has the causal role in producing the
24 change in behavior or brain activity or anything. Since you
25 can't separate out in his studies the specific effect of video

1 game exposure, you can't draw an inference about the specific
2 effect of video game exposure.

3 Q Now, Dr. Kronenberger has testified about certain
4 neurocognitive tests that he has used. Just as an initial
5 matter, can you explain what neurocognitive testing is?

6 A Well, neurocognitive testing is a term that's used more
7 typically within the neuropsychological or clinical psychology
8 community. The way that it's used is with an inference given a
9 particular pattern of behavior, can one decide what part of the
10 brain is active, but in truth most of the research we now have
11 on fMRI and better brain measures suggests, indeed as I had
12 outlined earlier, you can't make those clear kinds of
13 inferences.

14 Some areas may be more involved when you do a certain
15 kind of thing, but that doesn't obviate the role of the rest of
16 the networks of the brain in those particular activities. So,
17 we can look at the relatively greater activity or lesser
18 activity of a particular region in a particular task, but that
19 doesn't say that region is specifically handling the processing
20 for that task.

21 Q And Dr. Kronenberger also talked about executive
22 functioning. Can you explain what executive functioning is?

23 A Well, executive functioning is a very broad term that's
24 intended to cover a lot of different areas of psychological
25 processing, everything from attention and choice, working

1 memory, some aspects of behavioral regulation and control.
2 There isn't one particular executive function. There's no
3 specific theory about what executive function is.

4 And although there's a lot of research and inference
5 about how particular forms of brain damage affect particular
6 kinds of executive functioning, there's no clear theory about
7 it, no clear scientific agreement about it.

8 Q And Dr. Kronenberger explained that he had used in at least
9 three of his four tests either a Stroop task or a continuous
10 performance test. What is your opinion about the validity of
11 using either the Stroop task or the CPT to measure control over
12 behavior?

13 A Well, the Stroop task is used in lots of research, but it's
14 not typically used as a direct measure of control over
15 behavior. It reflects the competition between two responses.
16 So, when J.R. Stroop in 1935 proposed this as a way of
17 investigating psychological processing, he wanted to pit the
18 habits of reading against another habit, naming colors, one
19 being stronger than the other, and showing, in fact, that they
20 compete in various ways.

21 But that doesn't tell us anything about behavior
22 control. There's a lot of similarity in the use of the term
23 inhibiting a response where it refers to not naming the word,
24 but naming the color, versus inhibiting a response where it
25 means taking something that doesn't belong to you or hitting

1 somebody that you're angry at. Those kinds of inhibitory
2 responses seem very different and look to be very different in
3 the research.

4 Q And what about the continuous performance test?

5 A The continuous performance test is a kind of vigilance task
6 that requires the inhibition of a propensity to respond. So,
7 in those circumstances where you see a letter come up and you
8 press the button, that's the most frequent kind of response.
9 On some occasions a letter comes up you're not supposed to
10 respond to, and you're supposed to inhibit a response.

11 That's a perfectly valid measure of some aspects of
12 attentional processing, but again it's about inhibiting a
13 response that's not tied to a particular motive or goal you
14 would have. It's not oh, I desperately want this pretty thing
15 here or I'm really angry at you. It's really about, well, you
16 told me to do this task, and I'm going to do it this way.

17 So, it's more akin to what radar operators do when
18 they're sitting in Greenland and looking for bogeys coming over
19 the Poles or something, where they're just sort of looking for
20 something, and they get pretty bored, and it's not terribly
21 exciting.

22 Q Now, Dr. Kronenberger, as you know, also used fMRI in some
23 of his studies about the effect of media violence. In your
24 opinion, do fMRI images show an exact snapshot of a person's
25 brain activity?

1 A No. Very few people ever actually look at the raw data
2 that comes off of an fMRI scanner. What we're looking at in
3 most of the data presentations is not a direct picture of the
4 brain activity. In fact, your brain is highly active all the
5 time. What you're looking at is typically processed models,
6 mathematical models that are made about the kind of brain
7 activity or the kind of circumstance that one expects, and
8 looking at, say, a 1 percent to 3 percent change in total brain
9 activity that might be significant.

10 So, those images that we look at are not really
11 snapshots of brain activity. They're snapshots of differences
12 of brain activity. In fact, people seldom look at brain
13 activity with fMRI.

14 Q And then in Dr. Kronenberger's studies, we saw these
15 pictures of brain activity, as you've just described, but
16 they're comparing it to group. It actually represents a group
17 of some number of people. Do those images reflect the actual
18 brain activity of each person in that group?

19 A No. There's an interesting problem that occurs in group
20 images or group analyses. So, you can have a situation where
21 activation appears in a nice fat clump in one part of the
22 brain, but, in fact, if you looked at the activity in every
23 individual subject, nobody shows activity in that part of the
24 brain.

25 And the way to imagine this sort of as a picture is to

1 imagine that each subject had activity on the circumference of
2 a circle, and then if you spatially averaged all those spatial
3 locations, you'd get the center of the circle. So, it would
4 appear like there's activity in the middle of the circle when
5 nobody ever had activity there.

6 Q And Dr. Kronenberger, as you know, used something called a
7 media exposure measure in order to assess each subject's
8 exposure to media violence. In your opinion, is that measure
9 valid?

10 A Well, valid of what? I mean, it's a highly retrospective
11 measure. It's a subjective report. It's prone to recall
12 error. It's prone to the potential to please an experimenter or
13 to fit into a particular setting. It doesn't necessarily tell
14 you what kids were doing in terms of their exposure to media.
15 It probably correlates with it, but there's also probably
16 distortion, and who the subjects are that are making the
17 reports might show different amounts of distortion, making it
18 difficult to use.

19 Q And Dr. Kronenberger also used a measure called the DBD, I
20 think disruptive behavioral disorder, in order to separate the
21 subjects in his research into sort of two -- control versus
22 DBD. In your opinion, is the DBD classification used by
23 Dr. Kronenberger a valid way to measure aggression?

24 A It seems like a funny way to measure aggression. I mean,
25 it's true that the diagnostic criteria that he uses for

1 inclusion into the DBD group require reports of aggression, but
2 there's no actual observation of aggression involved in any of
3 those classifications. So, it could very well be the case that
4 the DBD group is much more like an ADHD group, attention
5 deficit hyperactivity disorder. And, in fact, in most of his
6 studies, the measures correlate quite closely with ADHD.

7 Q And did the DBD classification also rely on reporting by
8 parents?

9 A Reporting by parents, reporting by teachers, I think. I
10 can't remember exactly. But, again, if you have a kid that's a
11 little bit hyperactive or maybe doesn't follow rules
12 particularly well, some of their behaviors can be judged to be
13 aggressive if you have concerns about that kid in that context.
14 Whether or not they actually hit anybody is another issue.

15 Q Judged to be aggressive by the parent or by the --

16 A Judged by parents, certainly. Parents can judge their kids
17 to be aggressive when they've had trouble controlling them or
18 having them comply with their requests.

19 Q Now, I'd like to turn to sort of the third -- the
20 classification of your criticism of Dr. Kronenberger's
21 research, the actual results and conclusions. And if you see,
22 I would like to talk about the Mathews, et al. study, which is
23 the last study attached to Defendants' Exhibit 1, and that
24 you're in the right document. And have you reviewed this
25 study?

1 A Yes, I have.

2 Q And this study involved which areas of the brain?

3 A I'm sorry?

4 Q This study involved which areas of the brain?

5 A Well, they examined activity specifically in the anterior
6 cingulate, ACC, the inferior frontal gyrus, and the middle
7 frontal gyrus, bilateral for both of those gyri.

8 Q And I know you've said that specific brain regions may be
9 involved actually in a number of different functions, but can
10 you just explain generally what those three areas of the brain
11 are associated with?

12 A Lots of things. The anterior cingulate is involved -- the
13 anterior cingulate, the inferior frontal gyrus, and the middle
14 frontal gyrus have relative involvement in different ways in
15 working memory, memory encoding, memory retrieval, some aspects
16 of emotion, some aspects of motor control, a lot of stuff.

17 Q Now, you said working memory. What does that mean?

18 A Sorry. Working memory is where someone tells you a phone
19 number and you have to walk across the room and dial it. When
20 you're holding it in your head, that's working memory. Working
21 memory is thought of as a repository for information while
22 you're operating on it.

23 Q And in your opinion, do these areas, the ACC, the IFG, and
24 the MFG, do they correspond to aggression?

25 A No. These areas certainly are not highly associated with

1 people who are aggressive, or activity in these areas is
2 certainly not highly associated with people who are aggressive.

3 Q Assuming that you wanted to measure the parts of the brain
4 that are thought to be associated with aggression or control
5 over behavior using fMRI, which areas would you look at?

6 A Well, I guess the best way to think about it is there's
7 kind of a tale of two patients. In the 1800s Paul Broca had a
8 patient who had damage in the dorsolateral prefrontal cortex,
9 the left side inferior frontal gyrus, and middle frontal gyrus.
10 That patient no problems in behavioral control that were
11 reported, but that patient could only say the word "ton." In
12 other words, damage to the left side IFG and MFG produces
13 what's called Broca's aphasia, a problem producing speech.
14 This is something actually that Dr. Kronenberger referred to, I
15 believe, in his deposition, even though he didn't identify it
16 with these areas.

17 However, another patient case, Phineas Gage was a
18 railroad worker in the 1800s and was tamping explosives with an
19 iron rod. That iron rod was shot by the explosive through the
20 forehead damaging the orbitofrontal and ventromedial portions
21 of the brain, ventromedial prefrontal cortex. He turned from a
22 nice family guy, church-going, you know, very soft spoken, to
23 someone who ended up being homeless, penniless, with no friends
24 because he basically became a sociopath, couldn't keep his
25 hands to himself, started a lot of fights in bars.

1 So, within the realm of these two tales, the inferior
2 frontal gyrus and middle frontal gyrus is typically associated
3 with cognitive processes, like language use and working memory,
4 but the orbitofrontal and ventromedial prefrontal cortex are
5 more closely associated with aspects of behavioral control and
6 self-regulation.

7 Q And in any of Dr. Kronenberger's research, did he look at
8 the areas you've just identified? The orbitofrontal cortex or
9 the ventromedial prefrontal cortex?

10 A Not that I know of. In Dr. Mathews' study there's a
11 specific comment that they didn't look at those areas because
12 they were not technically able to.

13 Q And in the Mathews study, as you know, Dr. Kronenberger
14 said that they used a counting Stroop task. In your opinion,
15 does the Stroop task used in this study measure self-control?

16 A No. It measures your ability to respond to one thing by
17 picking it out of two choices and ignore the other thing. So,
18 it's about filtering and selective attention and responding.
19 Maybe working memory, but certainly not behavioral control in
20 that sense.

21 Q And then in Dr. Mathews' studies, Dr. Kronenberger refers
22 to the study as finding similarities between control
23 adolescents with high media violence exposure and the teens
24 with a diagnosis of a disruptive behavior disorder.

25 If you look at Table 1 on Page 289 of the Mathews

1 study, in your opinion does this show -- do you agree that
2 there are similarities in these two groups?

3 A I'm sorry. Which are the two groups again?

4 Q The control with a high media violence and the DBD group.
5 The all DBD is what Dr. Kronenberger was comparing.

6 A The all DBD group actually shows bilateral activity in the
7 middle frontal gyrus. That means on the left and right sides.
8 The controls with high media violence exposure show left-sided
9 middle frontal gyrus activity only. So, typically in our
10 studies we'd say they look different.

11 Q And do you read the Mathews study as showing a reduction in
12 activation in the frontal lobes for the DBD group and this
13 control group with high media violence?

14 A It's really hard to make that assessment. If you look at
15 the table, they report that there's one cluster of activity in
16 the left middle frontal gyrus for controls with high media
17 violence exposure and two clusters, one in the left inferior
18 frontal gyrus and one in the anterior cingulate, although we
19 don't actually know what part of the anterior cingulate.

20 Now, if you just counted clusters that way, you'd say,
21 well, there's two here in one group and one in the other group,
22 and so it looks like there's a reduction. However, the
23 scientific standard for presenting data of this sort is not
24 just to report numbers of clusters, but the size of the
25 clusters, how many voxels in the cluster. So, actually, if you

1 were to look at the tables in the Wang study that's a
2 presentation, they tell you how many voxels are active in a
3 cluster and what the signal strength is. Here it's impossible
4 to assess just because the number of clusters doesn't tell you
5 how much signal is there.

6 Q And what about for the DBD group versus the control group?
7 Is there a reduction in the number of clusters?

8 A Overall?

9 Q Yes.

10 A It doesn't look like it to me. It looks three and three.

11 Q And Dr. Kronenberger talked about, for the DBD group,
12 finding activity actually at the -- greater activity in the
13 middle frontal gyrus, as opposed to the inferior frontal gyrus?

14 A Yes.

15 Q And what does it mean -- what does that mean in terms of --
16 what's your opinion of that finding?

17 A Well, Dr. Kronenberger doesn't really give us much of an
18 interpretation of what the relative responsibilities are of the
19 inferior frontal gyrus or the middle frontal gyrus. I could
20 make up a good story here and say, well, the guys who are using
21 the inferior frontal gyrus were talking to themselves when it's
22 on the left side. They're kind of subvocalizing the task. The
23 guys with the middle frontal gyrus activity maybe on both sides
24 are using visuospatial working memory and verbal working memory
25 in a slightly different way. So, in other words, you could say

1 you can get the same effects when two groups use different
2 strategies, but it doesn't imply a deficit.

3 Q And then Dr. Kronenberger agreed that in this study there's
4 no showing of a difference in Stroop task performance between,
5 for instance, the control with high media violence versus the
6 control with low media violence; that is right?

7 A That's my reading, yes.

8 Q So, if you do have two different groups and they have the
9 same performance, but they show a different pattern of brain
10 activity, what conclusion can you draw from that?

11 A Well, they're different groups with different strategies.
12 So, Patty Reuter-Lorenz, who's a neuroscientist at Michigan,
13 has been studying older adults over the age of 65 and younger
14 adults under the age of 50 and looking at their memory
15 performance, and when they're matched on memory performance,
16 they show patterns like this.

17 In other words, they do equally well in memory, but
18 they show a different strategy, the older adults being
19 bilateral in their cortical recruitment and the young adults
20 being more unilateral. Since there's no difference in
21 performance, you can only say that they're using the brain
22 differently to achieve this performance.

23 Q Assuming that this study does show a reduction of activity
24 in the frontal lobes, could there be an explanation for this
25 other than impairment?

1 A Well, there could. A reduction in frontal lobe activity
2 could reflect an increase in expertise in carrying out certain
3 kinds of attentional tasks. So, Poldrack has reported a study
4 where people do a certain kind of attentional task repeatedly,
5 and what he finds is there's a reduction in cortical activity
6 in these kinds of regions.

7 So, reductions in cortical activity could reflect
8 increases in efficiency. And indeed when people play violent
9 video games, there's evidence from work by Green and Bavelier
10 that they do improve in selective attention and attentional
11 capacity.

12 So, there's behavioral evidence from one set of
13 studies, one study, that shows that playing certain violent
14 video games to a great degree improves your expertise with
15 attention and attention capacity. There's another study that
16 shows when you develop expertise with attention capacity, you
17 get a reduction in these kinds of areas for activity in the
18 brain. So, that's a possible explanation.

19 Q And how do you interpret the role of the DBD group in this
20 study and in Dr. Kronenberger's other studies of brain imaging
21 and executive function in terms of comparing DBD with the high
22 media violence group?

23 A His intent or the effect when you read the paper?

24 Q Well, how do you interpret the role, or how do you read
25 that?

1 A Well, the implication of their inclusion is that they serve
2 as a kind of blueprint to the brain. So, here's a group of
3 kids that on basic criteria of report seem to be aggressive.
4 They show a certain pattern of brain activity. Now, here's
5 another group of kids. They're not necessarily aggressive.
6 Nobody's diagnosed them as aggressive. But look,
7 Dr. Kronenberger would say. There are similarities in their
8 brain activity. Thus we can take that as a kind of surrogate
9 outcome measure. We can say, oh, there's an early warning sign
10 there that they're going to turn out like these DBD kids,
11 although the similarities don't really warrant that kind of
12 conclusion.

13 Q Now I'd like to turn to the nonfMRI study of executive
14 functioning, which is Defendants' Exhibit 2, and this is the
15 study that Dr. Kronenberger was a principal author on. And you
16 reviewed this study?

17 A I did.

18 Q And in your opinion, did this study find a difference in
19 executive functioning along the lines of media violence
20 exposure?

21 A No. I was confused about this study for a long time until
22 I looked very carefully at the measures that were used.
23 Dr. Kronenberger wants us to read this study and take the
24 Stroop color-word data as indicating that a slowdown in Stroop
25 color-word response is a measure of a problem of a certain kind

1 of executive function. And that might be a valid conclusion,
2 except he doesn't actually report the data that represent the
3 interference effect.

4 So, he tells us, oh, this is how long it takes
5 people -- well, he doesn't tell us how long it takes people to
6 name things. He tells us that it takes longer to name
7 color-word ink when you have high exposure to media violence
8 regardless of other qualifications. But, in fact, what he
9 could mean is that people with high exposure to media violence
10 just slow down in everything they do because he didn't measure
11 the difference between the time it takes them to name the color
12 of X's in relation to the color-naming time for the words.

13 So, Stroop interference is actually the difference in
14 the reaction time, and that's important. If you're really slow
15 at naming everything, you'll be slow at naming the X's and slow
16 at naming the ink for color-words. And then you subtract that
17 difference, and there may or may not be a Stroop interference
18 effect.

19 He only reported -- even though he makes an argument
20 about why he does it, he only reports the color-word naming
21 times raw in relation to media exposure. And so, you can't
22 tell anything about executive function from that.

23 Q Okay.

24 A Oh, and sorry. The continuous performance task is another
25 situation of that kind. So, in the continuous performance

1 task, executive function might be reflected to some degree, at
2 least in terms of attention and focus of attention vigilance,
3 by your propensity to correctly withhold a response to an X or
4 your failure to withhold that response, that is, to respond
5 inappropriately when this infrequent X stimulus comes up in the
6 continuous performance task. That's a task where letters come
7 up, you press the button when you see a letter, and you don't
8 press to an X. But what he reports is the variance -- he
9 reports a standard error of the mean, but it's the variance in
10 reaction time. That means how slow are you to how fast are
11 you, not whether or not you're responding incorrectly.

12 Now, the measure that you really want, if you believe
13 that people can't inhibit their responses, is the false alarm
14 rate. How many times do you press the button to the X. But he
15 didn't give us that information.

16 So, from the two laboratory measures, there's no
17 evidence in this paper that I can see about the relationship,
18 raw or regressed out, about media exposure and executive
19 function.

20 Q Now, I just want to talk briefly about the Wang study,
21 which is not in evidence, but I know you've reviewed that
22 study; is that right?

23 A Yes.

24 Q And you know that this is the study where they put the
25 subjects in the fMRI scanner and had them watch filmed clips of

1 two kinds of video games; is that right?

2 A That's correct.

3 Q And Dr. Kronenberger described the study as involving

4 simulated video game play. Do you agree with that

5 characterization?

6 A I'm not sure what that characterization means. I

7 understand from reading what he said that it means pressing a

8 button when something is supposed to happen. But that doesn't

9 simulate video game play because the world doesn't respond when

10 you make an action. And anybody who's played a video game is

11 going to immediately recognize there's a decoupling between

12 what they do and what's happening in the world, and that's a

13 very different situation. It doesn't simulate game play at

14 all.

15 Q Now, would you expect the fMRI results to be different if

16 the subjects were actually playing the game?

17 A Well, they could very well be very different. I mean, when

18 you interact with something, your behavior, your attitude, your

19 responses is different. In this particular case, we actually

20 don't know a lot about the brain activity that was reported.

21 They only reported, I believe, middle frontal gyrus and

22 inferior frontal gyrus activity. So, they did not report

23 whether or not there was anterior cingulate activity.

24 And also, quite surprising, given that there was a

25 violent video game that they were watching, there was no

1 evidence of amygdala activity, which is something they would
2 have predicted. At least they didn't report it.

3 So, I have no idea what it would be like, but since
4 it's a very different situation for you to interact with the
5 world and change it, I'm sure that the brain activity would be
6 different.

7 Q Now, why do you say that amygdala activity is something
8 they would have predicted?

9 A Well, that's part of the background assumption from
10 paragraph 18 from Dr. Kronenberger's declaration. So, he makes
11 the assertion about hyperarousal of the amygdala, and that's in
12 the context of if you're exposed to some kind of violent
13 information, in principle you should get hyperarousal.

14 In Dr. Cronin's (phonetic) study, they used the
15 violence-related words as a proxy for violent presentation.
16 One presumes that if watching a violent video game in this
17 study activated the amygdala, they would have been quite happy
18 to report it, but they didn't.

19 Q Now, Dr. Kronenberger testified yesterday that the Wang
20 study showed bilateral activation in the middle frontal gyrus
21 for the control group, whereas in the Mathews study it showed
22 bilateral activation for that same area in the DBD group. Is
23 that consistent with Dr. Kronenberger's claim of a deficit in
24 the prefrontal cortex?

25 A Well, it's a little confusing. So, the standard model of a

1 deficit is a stroke. In a stroke a part of the brain dies.
2 That part of the brain can't respond. If you believe that a
3 part of your brain is unresponsive because of habitual behavior
4 of some kind, it should just be unresponsive.

5 Now, I know Dr. Kronenberger has argued that it's a
6 different task, and so there's different demands on it, and I
7 agree with that, but in respect of the model of deficit, if the
8 brain is deficit, it should be deficit in both cases. The fact
9 that it responds in one case and doesn't respond in another
10 case doesn't signal a deficit. It signals a difference in
11 strategy. I think people were just approaching this task
12 slightly differently than the other task, neither of which has
13 to do with behavioral control or self-regulation.

14 Q And does this study show an impairment of executive
15 functioning for teens with high media violence exposure?

16 A This study?

17 Q Yes.

18 A There's no measure that I'm aware of of executive
19 functioning in this study. That would be a behavioral claim.
20 In fact, this study didn't give us any behavioral data. I
21 didn't know until late in the game that people were doing
22 anything. I did not see a clear measure of a task of pressing
23 buttons, and given that people were pressing buttons, you might
24 want to know how much agreement there was in the places the
25 buttons were pressed, are people perceiving these videos the

1 same way, are they equally quick. There are a lot of questions
2 you could ask about the behavioral data, but none of it's
3 given.

4 Q As when you mean you didn't see it 'til late in the game,
5 it wasn't in that Wang slide presentation?

6 A I didn't see it in the Wang study. I saw it described
7 either in the deposition for Dr. Kronenberger or his
8 declaration.

9 Q Now, you already mentioned the Kalnin study, and that's
10 phase two of Dr. Kronenberger's research, as he testified.

11 Now, Dr. Kronenberger has described this study as
12 using a, quote, emotionally provocative, end quote,
13 neurocognitive task. Do you agree with that description?

14 A No. Well, I suppose it depends on what he really means by
15 emotionally provocative, but in the vernacular of something
16 that's emotionally provocative, very few people really get
17 upset when they see the word hit or kill. They might have a
18 judgment about that word, but they don't really get agitated.
19 So, I don't consider it emotionally provocative. We do
20 emotionally provocative Stroop tasks, too, and all that really
21 means is that subjects can decide whether a word is positive or
22 negative.

23 In this particular study, they actually didn't collect
24 valence ratings. So, we don't know if there were effects on
25 people's mood. You could collect what's called a profile of

1 mood states or a panus (phonetic), which is another measure of
2 how you're feeling. So, these people saw these words. You
3 could ask them essentially by the appropriate measures, are you
4 feeling anxious, upset, agitated, or something, depressed, sad.
5 They didn't ask them anything. So, there's no evidence from
6 the behavioral aspect of this that it's emotionally provocative
7 at all.

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1 Q Is it possible that you would have the same kind of
2 response to a word like "hit" or "kill" and to a word like
3 "love" or "happy"?

4 A In behavioral terms or in fMRI terms?

5 Q In terms of responding more slowly to those terms.

6 A Oh, absolutely. In our emotional Stroop test where we use
7 things like "happy" and "sad," people are slowed down both to
8 the "happy," the positive and the negative words.

9 There is no way to know in this study because they
10 didn't include the positive control words.

11 Q Now, based on the slide presentation which is attached as
12 the first exhibit to Defendants' Exhibit 1, the Kalnin study,
13 do you believe that this study shows that the DBD subjects with
14 high media violence exposure were slower to respond to the,
15 quote, "violent" words than the DBD group with low media
16 violence exposure?

17 A No, no.

18 Looking at the reaction time data, if anything, it's
19 the opposite. I was a little bit surprised to see this
20 presentation of data. Typically, if you want to make an
21 argument about a Stroop effect, you would take, as I mentioned
22 before, a difference between those two conditions, violent and
23 nonviolent words, and plot the magnitude of the interference
24 effect across the groups.

25 They didn't do that. But they presented the data from

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1 the two separate groups in separate graphs. So you can't even
2 easily compare them, and then they put the graphs on different
3 scales. So it's a little bit misleading.

4 I mean, the top of both graphs is the same, but the
5 bottom of the two graphs is different.

6 And then I was actually a little bit surprised to hear
7 Dr. Kronenberger say that you can't -- in response to a
8 question from you, Ms. Fallow, that you can't compare those
9 reaction times because you don't have the variances.

10 Well, he didn't put the error bars on. Standard
11 scientific presentation of these kinds of data would be to put
12 both figures on the same reaction time graph, so you could
13 compare them directly, and then to plot around each point a
14 small bar that would indicate the 95 percent confidence
15 interval.

16 That would tell you, simply by looking, whether or not
17 they are different. That would be sort of the standard in most
18 scientific presentations. So it is a little bit disturbing the
19 way this data has been presented.

20 No, you can't draw a conclusion of that sort at all.

21 Q What about the assertion that they may have been -- that
22 the DBD subjects with high media violence may have been, just
23 as an absolute number, slower to respond to the violent words
24 than the DBD subject with low media violence?

25 A Well, the DBD subjects with high media exposure are slow

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1 kids. If you look at the nonviolent words, they are the
2 slowest kids. If you look at the violent words, they are the
3 slowest kids.

4 Not only that, even though they are matched on IQ,
5 they have the lowest accuracy on both sets of words of both
6 groups.

7 So there is clearly something different about these
8 kids than all the other groups.

9 Q Now, on page -- I am sorry.

10 Dr. Kronenberger has stated in paragraph 33 of his
11 declaration, the second and third bullet points, that the
12 Kalnin study shows more activation in certain areas of the
13 brain when responding to the violent as opposed to the
14 nonviolent words.

15 Based on your review of the presentation, did the fMRI
16 images in this slide's presentation represent the subject's
17 response to the emotional versus the nonemotional words or the
18 violent versus the nonviolent?

19 A There is no evidence of that. I mean, it could very well
20 be the case that they calculated those subtractions and never
21 put it into the presentation.

22 But when I read the presentation, I was very confused
23 by it because it looked like they were taking the violent words
24 and the nonviolent words and simply looking at contrasts
25 between the groups. There didn't seem to be any evidence that

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1 they were actually taking a difference between the two types of
2 words and then a double subtraction of the two groups.

3 It is not particularly difficult to do that, but there
4 is no evidence in the presentation that they did it.

5 Q Okay. Now, putting that aside, assuming whether Dr. Kalnin
6 separated out the reaction to the two sets of words,
7 Dr. Kronenberger cites the study as showing greater activation
8 in the amygdala and the parahippocampal gyrus for both the DBD
9 group and the high media violence exposure group.

10 Now, you have already talked a little bit about the
11 amygdala. Is the amygdala associated with feelings of fear?

12 A Well, in the research on the amygdala, the amygdala is one
13 of the target areas people study in what is called fear
14 conditioning. And what fear conditioning is about is your
15 anticipation of potential harm following a particular stimulus.

16 However, in the research on conditioning, it also
17 follows that you get amygdala activation when you anticipate a
18 reward or pleasure. The amygdala is more active when you see a
19 happy face. It's also more active when you see a disgusted
20 face and a fearful face.

21 So it is not entirely clear to me that it is the seat
22 of emotional experience, as one might infer, but it certainly
23 is involved in lots of cases where there is uncertainty in
24 learning and uncertainty in outcomes.

25 It's even active if you are listening to two different

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1 syllables, one to each ear. So I don't think you could
2 necessarily state that because that area of the brain is active
3 that it reflects fear on the part of the subjects.

4 MS. FALLOW: Thank you very much. I have no further
5 questions.

6 THE COURT: Cross-examination.

7 CROSS EXAMINATION

8 BY MS. LIU:

9 Q Good afternoon, Dr. Nusbaum.

10 You are not a neuroanatomist, are you?

11 A No, I am not a neuroanatomist.

12 Q You don't design fMRI studies independently?

13 A Independently of?

14 Q You design them yourself?

15 A Yes.

16 Q Do you require a radiologist or a neuroradiologist?

17 A In order to design a study, no.

18 Q For the fMRI technique or any of the specific calibrations
19 for the fMRI?

20 A I actually have not done any of the published studies with
21 a radiologist. The published studies were done with a
22 neurologist.

23 In both those cases I designed -- I certainly designed
24 entirely the first study. I designed significant aspects of
25 the second study that is published. That was collaborative

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1 work, but I did design the studies.

2 Q You designed the actual testing but not the actual -- the
3 fMRI coordinates or how the graphs are going to read?

4 A The data analysis in both those studies was relatively
5 parochial, but, in fact, I directed all the data analysis in
6 the cognitive neuroscience paper.

7 Q Now, you have never done any fMRI studies firsthand or
8 designed or collaborated, have you, with respect to any
9 relationships between adolescent behavior and destructive
10 disorders?

11 A Correct.

12 Q What about adolescent behavior in ADHD?

13 A No.

14 Q Have you performed firsthand or designed any studies
15 including fMRI or just neurocognitive testing to measure fear
16 or aggression?

17 A No. I guess I should qualify that, though. I am currently
18 working on a study of loneliness where people are looking at
19 emotionally disturbing pictures, and there are inferences being
20 made about the subjects based on a lot of research that is done
21 with John Caccioppo that suggests not that they feel fear or
22 aggression, but they certainly are in what might be called a
23 threat appraisal mode; that is, they are wary when they see
24 some of these images.

25 Q Are you using any kind of a hypothesis or methodology that

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1 is analogous to what you would test for adolescent disruptive
2 behavior disorders?

3 A I would not particularly test for disruptive behavior
4 disorder.

5 Q You don't even treat any adolescents or children with
6 disruptive behavior disorders, do you?

7 A That is correct. I don't treat anyone.

8 Q You don't evaluate them?

9 A Hmm?

10 Q You do not evaluate them?

11 A I do not evaluate them, no.

12 Q You don't treat or diagnose any children with attention
13 deficit disorders either?

14 A No, I don't, although I have talked about collaborations
15 with various people having to do with attention deficit
16 disorder; that is, I have consulted with them.

17 Q You identified earlier in your testimony several published
18 studies that you cited to Ms. Fallow regarding attention and
19 fMRI studies as well as testing on brain activity with respect
20 to attentional capacity, et cetera; do you remember?

21 A Yes.

22 Q And is it your testimony now that those articles are
23 relevant to any of the opinions in your declaration?

24 A Only as background to my understanding of cortical function
25 and fMRI research and the relationship to behavior.

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1 Q You have never conducted any firsthand research,
2 experimental, correlational, longitudinal, on the effects of
3 violent video games, have you?

4 A Yes.

5 Q What in particular?

6 A We have carried out a study that involves people learning
7 to play violent individual games and the effects of sleep on
8 consolidating that learning.

9 Q Was this this particular study where you recruited the
10 students over 18?

11 A Yes.

12 Q And there was no fMRI testing in this, correct?

13 A No.

14 Q And did this involve a violent video game as you described
15 to involve computer robots?

16 A Yes.

17 Q There was no human-like depictions in there?

18 A Well, it's very similar to Marathon 2 which Dr. Anderson
19 was talking about. The games that we used were Unreal
20 Tournament and Quake 3. There are human-like depictions, but
21 they don't look like normal humans.

22 Q You are describing them as human because they have a head
23 and two arms and two legs and that's it?

24 A Well, they have a face.

25 Q Would you mistake them for a human?

Nusbaum - cross

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1 A They wear clothes.

2 I am sorry?

3 Q Would you or a 13-year-old mistake them for a human?

4 A I don't think anybody would mistake anybody in a video game
5 for a real human, 13 or not.

6 If you asked, looking at one of these images, is this
7 one a person and is this one a robot, they would probably say
8 that one is a person.

9 Q Particularly subjects over the age of 18, correct?

10 A Probably subjects under the age of 13, certainly the
11 13-year-olds that I have met that play these games.

12 Q But you didn't test those 13-year-olds in this particular
13 experiment?

14 A No, I did not.

15 Q You are still not using fMRI testing in this particular
16 experiment?

17 A Correct.

18 Q Have you designed or conducted any firsthand research or
19 experimentation on any type of media violence other than
20 violent video games?

21 A I suppose you could consider the IAPS pictures that we are
22 using in the loneliness study -- that is International
23 Affective Picture System.

24 The IAPS pictures have pictures of car crashes,
25 dismembered human beings, babies with tumors, as well as nice

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1 couples sitting on a park bench, good sunsets, and baby seals
2 not being clubbed.

3 So it has pictures that are violent in it, and people
4 are not happy about those pictures, and that is an fMRI study,
5 but it was not carried out as a study of media violence per se.

6 Q So you are not trying to measure any type of relationship
7 in that study with media violence or affect or disorder or
8 mood?

9 A In our research we don't ask questions about media
10 violence.

11 What we are asking is a question about emotional
12 responses in humans with a role of attention in those emotional
13 responses and, in this particular study, how loneliness plays a
14 role.

15 Q You were referring to studies that have shown sometimes
16 decreased activity in the dorsolateral prefrontal area may
17 actually implicate an expertise or an effect called
18 automaticity.

19 Do you remember that?

20 A Yes.

21 Q Are you referring specifically to any literature
22 publication in support of that?

23 A Certainly at least the Poldrack study.

24 Q In the Poldrack study, are you referring to the neural
25 correlates --

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1 THE COURT: Spell that.

2 THE WITNESS: Poldrack, P-o-l-d-r-a-c-k.

3 BY MS. LIU:

4 Q This is the neural correlates of motor skill automaticity
5 article 2005?

6 A Yes.

7 Q In this particular case, how old were the subjects, do you
8 recall?

9 A I am sure they were at least college students. I didn't
10 check their ages.

11 Q What was the hypothesis?

12 Were they trying to measure anything related to media
13 violence?

14 A No.

15 Q Did they use certain regions of interest?

16 In other words, did they hypothesize that there were
17 going to be certain areas of the brain that may or may not be
18 activated during tasks?

19 A Absolutely.

20 Q So is there --

21 Is it fair to make an assumption that there are
22 certain areas of the brain or regions including systems of the
23 brain that a scientist can make an a priori assumption about
24 potential activity when they are designing a study to go look
25 for that activity in the scanning results?

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1 A Sure, as long as you don't make the additional
2 interpretation that that area is controlling the behavior that
3 you are investigating.

4 I don't think in the Poldrack study they are ever
5 arguing that any of those regions is controlling particular
6 behavior, but they are looking at decreases in activity in
7 certain regions as a result of automaticity or learning.

8 Q But just because one particular brain region is being
9 recruited during a certain task or a mental process, even if
10 it's your opinion that that is not the sole exclusive neural
11 activity correlate, it is possible that you can't rule out that
12 particular brain activation as being associated, can you?

13 A Oh, no. By definition it would be associated.

14 The word "associated" means correlated with. And so
15 in that respect, that activity is certainly part of the
16 package.

17 But what its role is is unclear. So I think in one of
18 our principles in the Journal of Personality and Social
19 Psychology article, you mentioned something about the light
20 that goes on in your heater when the heater turns on, and that
21 light goes on every time your heater turns on, but it is not
22 producing any heat.

23 That can happen to the brain, too; that is, you can
24 see activity in regions that's correlated with a function, but
25 it is not clear just from that alone what role that plays in

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1 the function. You have to do other research.

2 Q It's not your opinion --

3 THE COURT: Can we take a break for just a second? I

4 just need to take a short break.

5 (Brief recess.)

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1 (Brief recess.)

2 BY MS. LIU:

3 Q Dr. Nusbaum, one of your criticisms also regarding
4 Dr. Kronenberger's methodology is the use of a self-report; is
5 that correct?

6 A Yes.

7 Q Isn't it true, though, one of the studies that you rely
8 upon heavily, the Green and Bavelier study with respect to I
9 think it was the acquisition of skill increased efficiency
10 study, they also rely upon self-report?

11 A Correct, but one of the things that's nice about that study
12 is they formed a hypothesis from the reports of people's
13 game-playing, and they found group difference, significant
14 group difference based on that, but then they experimentally
15 tested it by training randomly assigned subjects either to a
16 Tetris group or to a Medal of Honor or Call of Duty group. So,
17 they were able to test the hypothesis that came from the first
18 study in an experimental setting and replicate their findings.

19 Q Well, even in this particular study that you rely upon,
20 isn't it true that they didn't account for gender in four out
21 of the five studies, four out of the five tests that they
22 applied to the subjects in the Green and Bavelier study?

23 A Yes.

24 Q In fact, the first four tests was all male subjects?

25 A Correct.

1 Q It wasn't until the last experiment in which they included
2 the training session they decided to add the females?

3 A Yes.

4 Q And is it your opinion that the gender has nothing to do
5 with a person's ability with respect to this relationship that
6 the study was trying to prove with visual perception, motor
7 skills, etc.?

8 A Well, in the last study they showed that females got the
9 effect, as well. So, whether it has an effect, I don't think
10 they went on to test that. So, I can't really say whether it
11 does or doesn't have an effect.

12 Q Well, both these studies, the Poldrack study and the Green
13 and Duvalier study, which you're citing in support of your
14 proposition that video games and, in fact, action video games
15 may increase perception, visual attention, and motor skills,
16 don't they both also involve sessions of training in which the
17 subjects are actually trained?

18 A Yes.

19 Q So, that's a little different than putting a kid in the
20 scanner, having them perform Stroop tasks that aren't
21 particularly interesting; isn't that correct?

22 A Well, in the Poldrack study, the training that they provide
23 on the tasks is I'm taking that as a proxy for video game
24 experience. I'm taking that as a proxy in light of the fact
25 that in the Green and Duvalier study if people come in having

1 played video games, they showed this expertise on tasks of
2 visual attention.

3 So, it's true nobody has done the study that links up
4 both of those things. It's an inference. But then I'm only
5 making this inference as an alternative possible interpretation
6 of what Dr. Kronenberger is claiming. So, it's not my argument
7 that we should advocate the playing of these games in order to
8 improve everyone's attention skills. It's only that there's no
9 clear evidence that the reduction in cortical activity
10 necessarily reflects a deficit in Dr. Kronenberger's study.

11 Q Now, isn't it your opinion that the Stroop task that was
12 used by Dr. Kronenberger's team in their research is, in fact,
13 relevant to any kind of cognitive process that may require
14 focus attention?

15 A It's relevant to many, not to all.

16 Q Well, can't the Stroop task performance be used to measure
17 schoolwork and performance in schoolwork, and isn't it, in
18 fact, used?

19 A Not often that I'm aware of.

20 Q You're not aware of it being used often or --

21 A I'm not aware that it is typically used as a proxy to
22 measure schoolwork performance.

23 Q Are you involved in any type of diagnosis or evaluation of
24 kids with learning disabilities in schoolwork?

25 A No.

1 Q When you --

2 A But I can tell you, for example, that some studies find
3 that Stroop interference is unrelated to age, for example.

4 Q Isn't it related -- color-word test specifically, isn't
5 that related to reading?

6 A It can be related to reading, yes. There's a study that I
7 found that showed that reading skill relates to it, but not
8 always. So, it's only one of those kinds of tasks that you
9 have to, as in Dr. Anderson's work, perhaps regress out a lot
10 of effects to see. However, it's also not specifically related
11 to age. So, the Stroop color-word interference doesn't really
12 increase a lot over age. It does change with IQ, though.

13 Q Now, you're not disputing that the areas that
14 Dr. Kronenberger's team found during their fMRI studies in the
15 neurocognitive testing, namely, the prefrontal cortex region,
16 the anterior cingulate, and parts of the limbic system, could
17 have been, in fact, activated comparatively during these
18 studies, are you?

19 A I wouldn't say that those were found as active in
20 neurocognitive testing. I would say there was active in fMRI
21 studies, according to their report. And I'm not disputing that
22 the areas that they say are active are active when they say
23 they're active.

24 Q Is it true or isn't it true that the anterior cingulate
25 activation is generally associated with executive attention?

1 A With? I'm sorry.

2 Q Executive attention.

3 A I'm not quite sure what executive attention means. It's
4 certainly involved in a lot of attentional tasks, some of which
5 have to do with focus of attention, some of which have to do
6 with monitoring yourself for making errors, say, when you're
7 taking a test and you make an error, encoding in memory, and
8 some aspects of monitoring attention, but I wouldn't say
9 executive attention because I'm not quite sure what that means.

10 Q Well, if I explain to you does it include areas of
11 task-switching or inhibitory control?

12 A Task-switching, absolutely.

13 Q Conflict resolution?

14 A Conflict resolution where conflict is between a propensity
15 to make two responses, not a conflict where you're having an
16 argument with somebody.

17 Q Correct. Not a conflict in an affective way as a
18 behavioral response.

19 A Correct.

20 Q What about planning and allocation of attentional
21 resources?

22 A There's a little more controversy about that, but
23 personally I think it's involved.

24 Q So, these areas of executive functioning, would you agree
25 they include self-control -- in the cognitive sense, not the

1 behavioral way. Self-control, attention, concentration,
2 self-monitoring. Are those areas that would be included in
3 executive functioning, as you know it?

4 A Well, you've slipped in a lot of terms that are not really
5 part of the literature of cognitive processing. So,
6 concentration, for example, is more of a vernacular term.
7 Self-control, more of a vernacular term. They may be relevant
8 in clinical settings, but in cognitive research on the anterior
9 cingulate that's scientific, trying to figure out what it's
10 really used for, those wouldn't be the functions that people
11 would be talking about. But in something like task-switching,
12 for example, yes, there's evidence that it's involved.

13 However, I should point out the anterior cingulate has
14 a lot of little parts, and not all the same parts are doing the
15 same things at different points in time. And so, in some
16 studies on emotional Stroop, for example, let's say the rostral
17 portion, that is, the lower portion, of the anterior cingulate
18 is active, where cognitive Stroop, a more dorsal or higher up
19 portion might be more active. Some parts are involved in motor
20 control. And so, it's not just one undifferentiated object.

21 Q Now, would you dispute a finding that tasks involving
22 inhibitory responses or impulse control would result in
23 activation in the dorsolateral prefrontal cortex area?

24 A Not all tasks involving inhibitory control. Some.

25 Q But there are tasks?

1 A If by inhibitory control we're referring to something like
2 the Stroop, obviously, yes.

3 Q Yes. Correct. I'm sorry. Like the Stroop interference
4 where you have to inhibit one possible response in order to
5 select the second.

6 A Yes.

7 Q Have you found any literature or studies critiquing
8 Dr. Kronenberger and his team's research or findings?

9 A No. I haven't found anybody who's cited them at all.

10 Q Have you heard of anectdotally or seen any literature or
11 in-press articles or new studies showing fMRI activation with
12 respect to violent video games?

13 A I saw a press release for a Michigan State study which
14 showed one sagittal slice. Hard to know what that means, hard
15 to know what the conditions are about. But that's the only
16 study that I've seen.

17 Q What do you know about that study, just anectdotally?

18 A What do I know about it? I can't remember much about it.

19 Q Are you aware that it involved violent video games?

20 A Yes.

21 Q And that the subjects were scanned in an fMRI?

22 A Yes.

23 Q And isn't it correct that that would be an article that may
24 or may not affect your opinions in this case?

25 A When it appears in January and I read it, I'll be

1 interested to see what they say and what they did.

2 Q So, isn't it correct that your opinions can be summed up by
3 saying that you don't believe that the conclusions are
4 supported by the research, but you don't have any contradictory
5 research or findings that can unequivocally say that
6 Dr. Kronenberger's results are wrong?

7 A That's correct.

8 Q And you don't dispute the fact that the DLPFC and the ACC,
9 as well as part of the amygdala, may be implicated during the
10 conditions that were tested in Dr. Kronenberger's tests?

11 A The amygdala, I think, is only active in one of the four
12 different -- three fMRI studies that he reports.

13 Q That was in the Kalnin study; is that correct?

14 A In the Kalnin study, correct.

15 Q And the Wang study and the Kalnin study, the articles that
16 you -- I'm sorry. Not the articles. The documents or the
17 presentations you reviewed, those were papers, correct? They
18 were power points, but they were not actually published
19 articles?

20 A Correct.

21 Q So, you don't know the underlying data that went into the
22 picture that was presented in the paper or the power point, do
23 you?

24 A Absolutely. I'm kind of surprised that anyone would take
25 that as evidence, given the lack of supporting detail.

1 Q Well, if you were a team member and you consulted with the
2 other team members, wouldn't it be reasonable to infer that you
3 would, in fact, know the underlying data?

4 A I would, but whether anybody else in the world would
5 necessarily treat as evidentiary that presentation seems highly
6 questionable, especially given the way some of the data are
7 presented.

8 MS. LIU: No further questions.

9 THE COURT: Any questions?

10 MS. FALLOW: No. I'm sorry.

11 THE COURT: You're excused. Thank you.

12 (Witness excused.)

13 THE COURT: Okay. In terms of other evidence that
14 people want to give me, I take it do people want to give me
15 copies of the depositions of some or all the people? Tell me
16 what you're going to give me.

17 MR. SMITH: We're going to certainly give you -- I
18 guess the declaration of Professor Goldstein is already --

19 THE COURT: The declarations we're considering already
20 in evidence.

21 MR. DEADY: We have the transcript from
22 Dr. Goldstein's deposition that we have today.

23 THE COURT: Dr. Goldstein. And are you going to give
24 me -- wasn't there one person on the plaintiffs' side that
25 didn't get called?

1 MR. SMITH: That was Dr. Goldstein.

2 THE COURT: I'm sorry. On the defendants' side that
3 didn't get called. Do you have his or her deposition?

4 MR. DEADY: They didn't take their deposition.

5 THE COURT: Didn't take it. Okay. So, the only
6 additional evidence I'm going to get is Dr. Goldstein's
7 deposition.

8 MR. DEADY: That's correct.

9 THE COURT: And you have that here?

10 MR. DEADY: Yes.

11 THE COURT: Oh, perfect. Okay.

12 All right. So, neither side has -- other than that,
13 neither side has any other evidence that you want to present;
14 is that right?

15 MR. SMITH: That's correct, your Honor.

16 MR. KASPER: Correct, your Honor.

17 MR. DRYJANSKI: That's correct.

18 THE COURT: Everybody says yes. All right.

19 Okay. In terms of argument, you tell me what you have
20 in mind in terms of length. You have to talk first.

21 MR. SMITH: I have to talk first.

22 THE COURT: Yes.

23 MR. SMITH: You have to give me a second to think.

24 THE COURT: And I get to talk last, which is the
25 advantage. So, you have to show yours before I show mine, in

1 other words.

2 MR. SMITH: Twenty minutes, half an hour.

3 THE COURT: Oh, you can have a half an hour.

4 MR. DEADY: I think a half an hour is fine.

5 THE COURT: Is it just you guys that are going to
6 argue?

7 MR. KASPER: Actually, your Honor, as you may recall,
8 a couple weeks ago I mentioned my upcoming honeymoon. Well,
9 the time is upon us. So, Mr. Deady and Mr. Dryjanski are going
10 to argue for us.

11 THE COURT: Okay.

12 MR. KASPER: Actually, I'm leaving as soon as we're
13 done.

14 THE COURT: Oh, okay. Well, have a good time.

15 MR. KASPER: Well, thank you.

16 MR. DEADY: And we were just going to -- Judge, I was
17 just going to handle the violent video, and then Mr. Dryjanski
18 was going to handle the sexually explicit.

19 THE COURT: Okay. So, if I give you a half hour
20 altogether, is that enough? Do you think it's not enough or --

21 MR. DEADY: I would think probably enough, Judge, but
22 it depends on what the questions are.

23 THE COURT: Okay. Well, I'm not necessarily going to
24 give people a hook at 30 minutes and one second. So, I
25 probably will have some questions.

1 But let's see. Why don't we say 10:00 o'clock, and I
2 ought to be done before 10:00 tomorrow, unlike today. And
3 depending on how you want to break yours up, I mean, if you
4 want to save some time for rebuttal, that's fine.

5 MR. SMITH: I'm sure I'll save a little time.

6 THE COURT: And I'd like to get it done in the morning
7 session. So, that means 10:00 o'clock to 12:30. So, I'll
8 probably end up giving you a little bit more time beyond a half
9 an hour, but don't plan on it because if you plan on a half
10 hour, then you'll end up taking an hour.

11 MR. SMITH: The other motion that's outstanding is the
12 standing motion that was --

13 THE COURT: I'm aware of that, and I know that I
14 didn't deal with that earlier, and I will try to -- if I don't
15 deal with that tomorrow, I'll deal with it in the ruling, but
16 for purposes of the argument tomorrow assume that that motion
17 is going to be denied, as well. But be prepared to answer
18 questions about it because I'm going to look over it again
19 tonight, and if there's something to ask on either side, I'll
20 let you know tomorrow. Okay. Any other questions? Anything
21 anybody needs to bring up?

22 MR. KASPER: No, your Honor.

23 THE COURT: Very good. Thanks a lot.

24 (Whereupon, the within trial was adjourned to Wednesday,
25 November 16, 2005, at 10:00 o'clock a.m.)