



Issues in parenting education



Violence in the media: its effects on children

This is an edited version of a presentation by Professor Craig A Anderson Chair of Psychology Department, Iowa State University, 11 September 2003.

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About the author

Professor Anderson is Professor of Psychology and Chair of the Department of Psychology at Iowa State University in the United States of America. He received his PhD from Stanford University in 1980 and has served on the faculties of Rice University, Ohio State University, and the University of Missouri – Columbia. He has been awarded Fellow status by the International Society for Research on Aggression, the American Psychological Society and the American Psychological Association, and serves on the Executive Council of the International Society for Research on Aggression.

Professor Anderson's publications (over 100) span a wide range of areas, including judgment and decision making, depression, loneliness and shyness, personality theory and measurement, and attribution theory. In recent years, his work has focused on the development of a General Aggression Model designed to integrate insights from cognitive, developmental, personality, and social psychology. His pioneering work on video game violence has led to consultations with educators, government officials, child advocates, and news organisations worldwide.



Foreword

Should I allow my child to play video games? What about violent movies – all the other kids see them? Are violent media harmful to my children? What kind of harm can media violence do?

These are important but difficult questions for parents raising children in a society where media is so enveloping and pervasive. On the one hand, many parents have a common sense understanding that if their children are watching and participating in violent entertainment programs, it could lead to violent behaviour. On the other hand, parents have to contend with a well-resourced video gaming industry, and the media industry in general, who actively play down the risks of exposure to violent media and challenge regulation on the basis of unwarranted censorship.

Parents are understandably confused and uncertain about what to do and often turn to parenting professionals for information and advice. So what should a parenting professional advise a parent? At a seminar given on 11 September 2003, Professor Craig Anderson addressed a large group of parent educators, researchers and parents in Melbourne, Australia. Professor Anderson's opening remarks summarised his contention that an unambiguous link exists between children's exposure to violent media and aggressive behaviour, and that there are particular reasons to be concerned about the impact of violent video games. He then deftly debunked some common, but misinformed, objections to the findings of this research with scientifically sound analysis of the conclusions. Next, he examined some of the cultural and social factors that may be preventing us from taking the problem of violent media as seriously as we should, and argued that parents should not assume that existing regulatory structures are adequate to protect their children.

Finally, he provided some useful questions that parents can ask themselves to decide if a particular video game might be harmful to their children. Professor Anderson succeeded in making a complex research literature accessible, understandable and practical.

Young Media Australia and the Victorian Parenting Centre are very pleased to publish this edited version of Professor Anderson's presentation, making this important material available to a wider audience. We trust that this resource will assist professionals, operating in a wide range of educational, health, and community settings, to respond effectively to parent questions and concerns about this challenging issue. Further we trust that policy makers will re-evaluate existing regulatory systems in the light of this substantial body of knowledge.

Warren Cann
Victorian Parenting Centre

Barbara Biggins
Young Media Australia

Firstly I will talk about the effects of media violence in general; primarily I will talk about research on television and movies, together with some of the more recent research on video games.

There have been hundreds of studies, but the results are generally consistent. One way of looking at a large set of research is to combine the results in a meta-analysis. This is basically a set of statistical tools designed to help you average the effects of a particular variable on another variable, across a large number of studies. It provides a view of the overall picture simply, cleanly, and without any selection bias on the part of the person doing the analyses (assuming they are done correctly).

The effects of media violence – past research

From the studies published up until about five years ago (which did not include many studies of video games), there are two main results. Firstly, short-term exposure to media violence increases aggression in the immediate situation. This has been clear since as early as 1975, based on analyses of everything published up to that time. Secondly, long-term exposure – that is, repeated exposure to media violence over a period of time during the childhood years – leads to an increase in aggression throughout the lifespan. There have now been studies that have followed a group of children for around thirty years, controlling for things such as parental income, educational level, and how aggressive they were as children; and they confirm and extend the short-term findings. Furthermore, until about ten years ago there were not many ultra-violent female characters in entertainment media, but that has now changed – take, for example, the *Lethal Weapon* movies.

So, while I enjoy and own videos of action movies, the research literature makes it clear that it is very inappropriate for young children to have access to violence of this sort.

Violent video games – worse than TV or movies?

Are violent video games worse than violent TV and violent movies? This is a question I am frequently asked by legislators, public policy people and parents. There are several good research-based reasons why the answer may be yes.

Firstly, in a violent video game the player has to identify with the aggressor – you become the aggressor, the character whose actions you control. It is known that identification with an aggressive character increases the impact of that character's behaviour on the viewer or the consumer.

Secondly, violent video games require active participation. The player has to choose to be aggressive, then actually press the button, or move the joystick or the gun, to make it happen. This is quite different from what happens when watching TV or a violent movie.

Thirdly – and these points are all interrelated – in a violent video game you rehearse the entire aggression sequence from beginning to end. You have to be vigilant, looking for enemies, looking for potential threats; you have to decide how to deal with the threat, what weapon to use and how to use it; and then you take physical action to behave aggressively within the game. Again, that is very different from the older forms of entertainment media.

Fourthly, the violence in a video game is directly rewarded, with points, with sound effects, and sometimes a narrator encourages you, saying things like “impressive” and “humiliation”. In contrast, the rewards that occur in a violent movie are vicarious. You can see the character being rewarded, but you, as the viewer, are not yourself getting a reward.

Fifth, the violence rate in video games is much higher than in other entertainment media. Even in the most violent movie or TV show, the number of acts of violence per half hour would still be lower than the typical “first person shooter”.

A “first person” game is one in which you, the player, see the world through the eyes of the character you are controlling. This means you do not actually see yourself. You see your hands and the weapons you are carrying, but you are seeing the world through the character's eyes. A “third person” game, on the other hand, is one where you see the character that you control, sometimes from the side, sometimes from above. In a lot of the newer games you can control where you see the character from, and in some, you can adopt either a first person or a third person perspective.

A “shooter” is a game where most of what happens is shooting. *Soldier of Fortune* is an example. One of its big advertising points was that high ranking

medical and military personnel had helped the video game producers to reproduce accurate physical reactions to being shot by different kinds of weapons, at different ranges, and on different body parts.

What every parent needs to know

The basic message for every parent – and every public policy person – is that children learn, and what they learn depends on the content they experience. The video game industry, at least in the United States, will deny that children learn anything negative from violent video games. Most parents, and most people who were once children, would disagree.

The basic message for every parent is that children learn, and what they learn depends on the content they experience.

A further point, more esoteric but also important, is that venting fails. Different terms have been used to describe this idea, but in the United States “venting” refers to things like hitting something or playing a violent video game to get your aggressive tendencies out in a relatively safe and socially approved way. This has been called the “catharsis hypothesis”, an idea that comes from the ancient Greeks, was brought into western civilisation by the writings of Freud, and is now a part of our culture. It is a beautiful idea, but it is not true: catharsis does not work. There was clear proof of this by the late 1960s, and catharsis is one of the most widely tested and discredited notions in all of psychology, yet it continues to reappear in different guises again and again. An Australian government-sponsored report published in 2000, for example, quotes a so-called “video games expert” saying that some of these violent games might actually provide a catharsis-type effect. It is incorrect.

The causality conundrum

Another difficulty crops up when people talk about whether or not video games cause an increase in aggressive behaviour. Much argument is put forward to counter this, and most of the counter argument comes from a misunderstanding of scientific causality.

Scientific causality is probabilistic, rather than “necessary and sufficient”; that is, a variable X causes an increase in the likelihood of an outcome,

Y. For example, we know that certain kinds of viruses will cause the common cold – but not everyone who is exposed to the virus will get the cold.

Let me illustrate through another example that parallels much of the media violence debate that occurs in public policy forums – smoking and cancer. Is there anyone who does not now agree that smoking causes cancer? When I was young, it was hotly debated and people ridiculed the research, but we know now that the medical scientists were right, that smoking causes cancer. But not everyone who smokes gets cancer. This violates the notion of “sufficient causality”; that is, that the cause – in this case smoking cigarettes – is *sufficient* to cause cancer in every single case. That does not happen. It is also the case that some non-smokers get lung cancer, and this violates the notion of “necessary causality”; that in order to get lung cancer, it is *necessary* for this cause to be present. It is not necessary, yet we know that smoking causes cancer.

The same kind of reasoning applies throughout science, be it behavioural science, medical science, or another branch of science. Most people understand this notion of probabilistic causality, but many seem to apply the old “necessary and sufficient” criteria when they do not like the specific case. So, for example, smokers and the tobacco industry denied for years that smoking causes cancer: “I smoked two packs a day for twenty years and I haven’t died of cancer yet”. In the case of video games, I get a lot of hate mail from fourteen-year-olds, while the video games industry hires people to say negative things about me and other researchers. Much of this stems from a misunderstanding of my scientific stance on violent video game effects.

When I say that playing violent video games causes an increase in aggression, I do not mean that anyone here is going to play a violent video game, then go and kill someone on the street. That is, violent video games are not a “necessary and sufficient” cause of violence, but they do cause an increase in the likelihood of aggression and violence. Nor do the games provide an excuse for violence. That is, I believe that people must be held responsible for their behaviour, even in cases where it can be shown that repeated exposure to violent video games contributed to violent behaviour. However, I also believe that the industry should also be held accountable in many circumstances.

For good or ill

Video games can be used for good or ill. They are great teaching tools. Yet while school systems have spent large amounts on computers, and parents spend lots on educational video games, there is practically no research showing that education through video games actually works. Schools and parents are willing to accept, on the face of it, that video games are a great teacher of positive things, but somehow they do not teach negative things.

Unfortunately, it does not work that way. What video games teach depends on content.

Video games are thus great teachers and great motivators, but they can be misused. But it is society, not science, that must decide how to deal with the negative effects of violent video games.

There are lots of non-violent games that are exciting, fun, and appropriate for different age groups. Some of them are educational, some of them are primarily entertainment. There are many examples of video games that teach standard school content: reading, math skills, and a variety of other things. There has been some work developing video games to help kids better manage their diabetes. Deborah Lieberman at the University of California, Santa Barbara, has published studies on this, in which they found that the kids who had these video games had fewer emergency room visits and managed their diabetes better than kids in the control group who did not get the games. That has never made the headlines and I have never seen those games marketed anywhere.

In another example, NASA was doing some research on the attentional difficulties that a fighter pilot faces with all that is happening in the cockpit of an aircraft. NASA was trying to develop ways to help pilots control their attention processes. As a spin-off, they developed a biofeedback mechanism that they tied into a racing simulation game, and they were able to show that kids with Attention Deficit Hyperactivity Disorder who used this game were better able to manage their attentional problems. The researchers were trying to find a company to market and further develop this, and they were having a very difficult time.

A number of years ago I bought a flight simulator called *Flight Unlimited*, together with joystick, pedal and instruction manual. It had three or four different kinds of planes, including a biplane often used by stunt pilots. My son, who was about eight years old at the time, spent a fair amount of time learning how to fly. About a year later he went on a NASA summer camp where children learn about space exploration, and one thing the camp organisers did was to assign the kids in small groups to a space shuttle mission. Each kid had a role – pilot, mission commander, mission specialists – and NASA put them in a space shuttle simulator. My son landed the space shuttle safely on his first try, and no-one had done that before. *Flight Unlimited* gets a lot of credit for that.

Video games are thus great teachers and great motivators, but they can be misused. But it is society, not science, that must decide how to deal with the negative effects of violent video games. Science is relevant to public policy debate but, much as it can tell us, it does not and should not determine public policy. Society needs to take the science-based facts that come out of the research, and decide what to do with those facts.

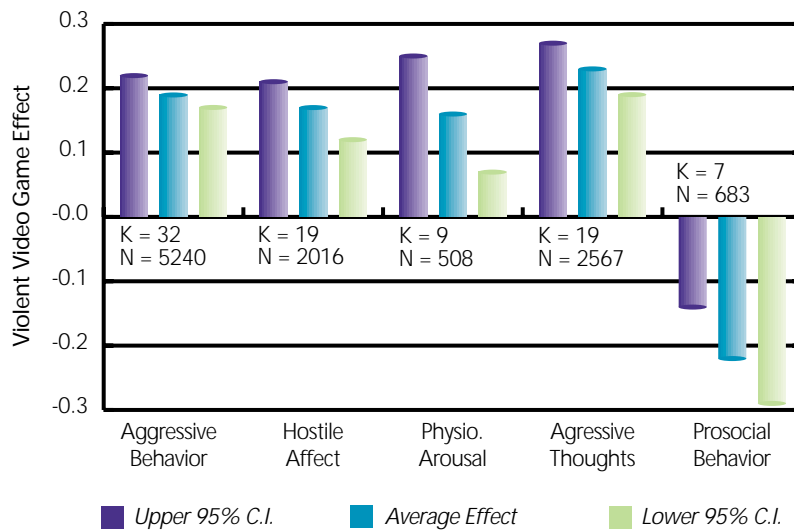
Five key questions about video games

Let's now talk about the research. I want to look at five questions.

■ Firstly, is the research evidence itself consistent?

I recently completed a meta-analysis of the research on video games. Figure 1 shows the overall results, the size of the effect that exposure to violent video games has on aggressive behaviour and on other aggression related variables. Let's first examine the effect on aggressive behaviour. If violent video games had no effect on aggressive behaviour, these bars would be very close to zero (zero equals no effect). A positive effect means that increased exposure to violent video games leads to increases in aggressive behaviour. A negative effect would be essentially what the catharsis hypothesis would predict, that exposure to violent video games would decrease aggressive behaviour.

Figure 1: Meta-analysis of video game research: Overall results¹



From Anderson, in press, JoA.

Note that the graph plots three different bars. The blue bar is the *average* effect size across 32 independent tests of this hypothesis involving over 5,000 research participants. The other two bars are the upper and lower 95% confidence interval. When we estimate an effect size, it is only an estimate, not an absolute figure, and these other two bars show what is a reasonable range within which the true effect size probably lies. Again, if there is no true effect of violent video games on aggressive behaviour, the purple bar should be slightly above zero and the green bar should be slightly below zero, and the blue bar should be right on zero. But they are nowhere near zero. So any claim that the research evidence is mixed is simply wrong.

We also looked at research on the effects of exposure to violent video games on hostile affects – basically, feelings of anger. We looked at physiological arousal, typically heart rate and sometimes blood pressure, and aggressive thoughts which are very important because it is the increase in aggressive thoughts that is believed to underlie long-term effects. The physiological arousal goes away after you stop playing, and there are many non-violent games that also increase physiological arousal, for example, playing a good racing game or playing real (not computer) baseball. So arousal is not too concerning (although some medical people think that the arousal problem may exist in a slightly different form). But aggressive thought is very important.

Several studies have also looked at prosocial or helping behaviour, and what we find is a significant decrease in helping behaviour as a function of exposure to violent video games. Again, the results are consistent and the effect clear. While not every study finds exactly the same thing (that would be true in any field), when you combine the studies in a meta-analysis, the results are clear.

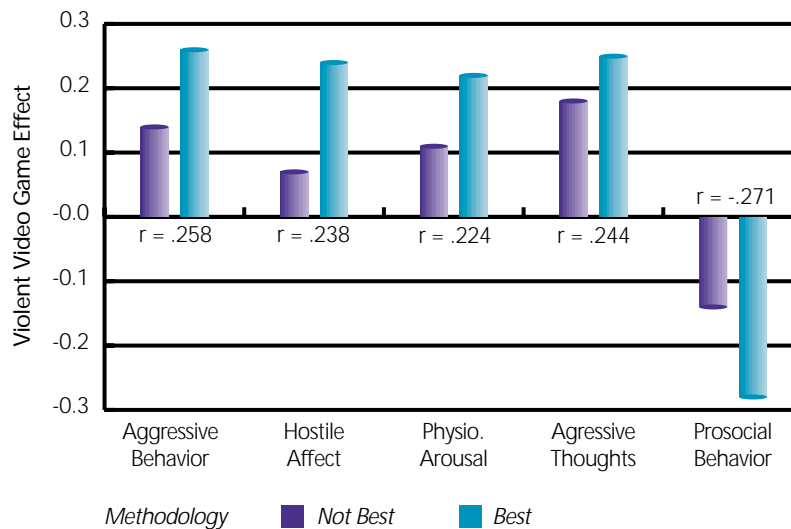
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■ Do poor research methods lead to over-estimates of these negative effects?

The critics and the industry itself have a lot to say on this – that the only studies that ever find anything harmful are very poorly conducted studies. I have looked through the literature and compiled a list of ten methodological weaknesses that occur in some media violence studies. I then put all the studies into two groups: those that have none of these major potential methodological problems – “best practice” studies and those that have at least one problem. I then looked at the average effect shown by these two groups of studies. The results are shown in Figure 2.

¹ Anderson, C.A. (2004). An update on the effects of violent video games. *Journal of Adolescence*, 27, 133–122.

Figure 2: Meta-analysis of video game research: Methods²



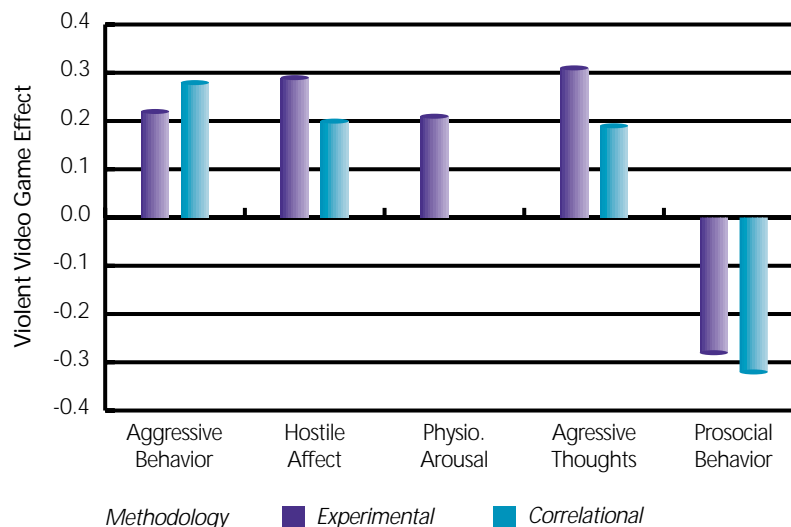
From Anderson et al., in press, AESP

For aggressive behaviour, the poorer studies on average find an effect size somewhere around 0.14. The best studies find a much bigger effect. So the conclusions we draw from meta-analysis are not based on weak studies; rather, it is the studies that are methodologically strongest that are showing the biggest effects, and the same is true for hostile affect, physiological arousal, aggressive thoughts and prosocial behaviour. So the argument that the effects are based on really poor studies is simply not true.

■ Is there causal evidence?

Some research has looked at whether the effects are simply correlational in nature. It is more risky to draw causal inferences from a correlational study than from a true experimental study – that is, a study where the researcher controls the independent variable which, in this case, is exposure to violent video games. So, is it the case that there is no causal evidence? If there is no causal evidence, that would mean that the experimental studies basically do not find an effect. But the experimental studies *do* find an effect – on average, they find pretty much the same effect size as the correlational studies do, as shown in Figure 3.

Figure 3: Meta-analysis of video game research: Experimental vs. correlational studies



From Anderson et al., in press, AESP

² Anderson, C. A., Carnagey, N. L., Flanagan, M., Benjamin, A. J., Eubanks, J., & Valentine, J. C. (2004). Violent video games: Specific effects of violent content on aggressive thoughts and behavior. *Advances in Experimental Social Psychology*, 36, 199–249.

■ **Is there evidence on seriously aggressive behaviour?**

Another often-used tactic is to say that these are just laboratory studies; people are not really killing each other. And of course you cannot do the kind of study where you take 10,000 children at birth and randomly assign 5,000 of them to growing up in a violent media household and 5,000 to growing up in a non-violent media household, and track them for some fifty years and see what the homicide rate is, with the hypothesis that one group is going to kill more than the other. There are studies that look at such variables, but they tend to be correlational and longitudinal.

Let's look at some of the kinds of aggressive behaviour that have been used in video game studies. I should point out that the laboratory methods for assessing aggressive behaviour have been validated over a forty year period, and they are valid measures of aggression. Effects studied in laboratory and field studies include fights at school; physical assault on teachers, peers or parents; armed robbery (based on self-report, but measuring what would be called armed robbery if it was known to the police); verbal aggression; together with ratings of aggressive behaviour by teachers, peers and parents. Some studies use a free fight situation with other children – researchers video tape or watch from behind a screen, and count how many times each child hits, kicks, punches, bites, trips, or the like – clearly aggressive behaviours intended to harm other kids. These studies show significant video game effects.

So the claim that the studies use trivial measures is simply not true.

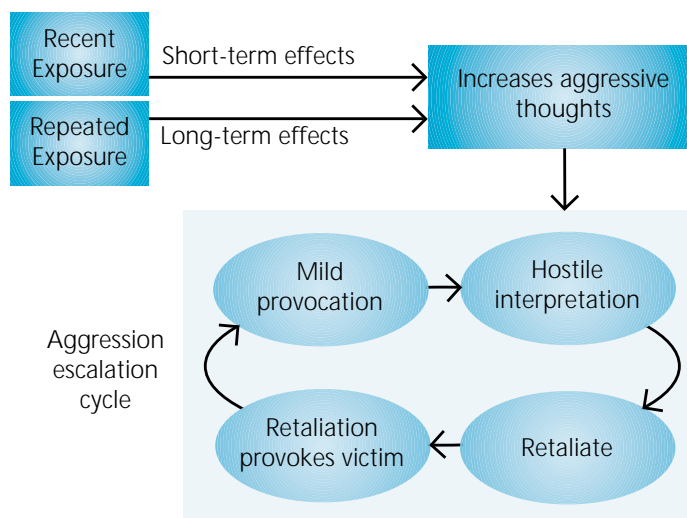
■ **Finally, is there good theory?**

Theory plays a vital role in good science. A set of numbers, a set of data, are very often not very meaningful by themselves; you really need a well developed theory. The theory tells you what to look for, other complicated patterns to be expecting; it gives you an idea of what to test, and it provides an explanatory context that is very important.

The effects are of two kinds: short-term effects that come about from a very recent exposure, and long-term effects that accrue from repeated exposure.

Is there, then, a good theory? Theory has been developing about this for over forty years, and Figure 4 shows a simplified version of the General Aggression Model applied to the interpretation of media violence effects. The effects are of two kinds: short-term effects that come about from a very recent exposure, and long-term effects that accrue from repeated exposure. Both seem to operate primarily through increases in aggressive thoughts, which is why the findings on aggressive thoughts (reported earlier) are so very important.

Figure 4: General aggression model



But how does this actually operate? If you have recently been thinking aggressive thoughts, or if you typically have aggressive thoughts primed (perhaps because you watch a lot of violent media or play a lot of violent video games), then when faced with a mild provocation – maybe an innocuous bump in a bar or in a lift – if you are thinking aggressive thoughts, you are more likely to interpret the bump as something intentional and harmful. Typically, this happens automatically, without thinking, and when it happens there is a tendency to retaliate – you may bump back, or say something nasty. And that in itself becomes a provocation for the other person. At some point in this cycle the provocations cease to be mild and become more serious. This is well known in the aggression literature as the standard aggression escalation cycle.

In some recent writings, we have also described how this is what often happens in international relations. The Israelis and the Palestinians have been caught up in one of these cycles for so many years now. From an outsider's perspective it is easy to see, but if you are the ones involved, it is very hard to break out of it.

In summary

So basically, there are five key questions:

- Is the research evidence consistent? Yes.
- Do poor methods produce these kind of results? No, good methods do.
- Is there causal evidence? Yes.

- Is there evidence on seriously aggressive kinds of behaviour? Yes.
- And is there good theory? The answer is certainly yes.

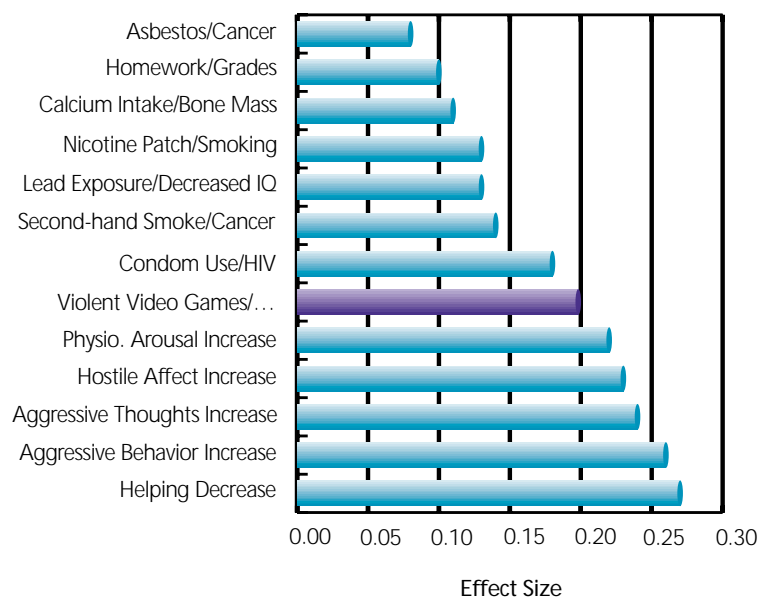
How big are the effects?

What, then, does a “0.2 effect” mean (as shown, for example, in Figure 1)?

One way of getting a feel for whether it is large or small is to look at other scientific domains that have established average effect sizes, based on a number of studies, and see whether those effects are larger or smaller than the effects of media violence. Figure 5 shows a number of examples. The first, the effect of asbestos exposure on certain kinds of cancer, is less than 0.1. It is a significant effect, it is important, and when a building is discovered with asbestos insulation or flooring, we take great care and go to great expense to reduce the problem.

The effect of calcium intake on bone mass is somewhat over 0.1, still not huge, yet how many people take some kind of calcium or take steps to ensure that they are getting a lot of calcium? The effect of nicotine patches in helping people to quit smoking, of homework on school grades, of lead exposure on IQ in children, of second-hand smoke on cancer, of condom use in decreasing the risk of HIV transfer or infection: all these are considered very important effects, but they are not huge.

Figure 5: How big are the video game effects?



From 'Best Practices' studies, Anderson et al., in press, AESP

The effects of video games, as shown in the methodologically best studies, are all higher than these. So whether or not you consider 0.2 to be a small effect depends to some extent on what you compare it to.

Why don't parents take the problem seriously?

There are several key points to consider here. Firstly, a huge problem in the United States, and I assume elsewhere, is that at least in some families, there is very little screening for violent media. One problem is that most people believe that media violence is either harmless or cathartic. There are at least four reasons why people might hold this incorrect belief.

The video game industry in the United States now is reported to take in more money than all of Hollywood.

■ Media industries spend many dollars "debunking" the research

Media industries spend large amounts of money debunking the research, just as the tobacco industry did twenty and thirty years ago. Paid media representatives testify before Congress or other groups, they issue press releases, and these are typically filled with misinformation. So one reason why parents believe there are no harmful effects is because there is a huge industry out there which denies that there is any evidence that playing a violent video game leads to aggressive behaviour. The video game industry in the United States now is reported to take in more money than all of Hollywood.

■ News media inaccurately report scientific findings

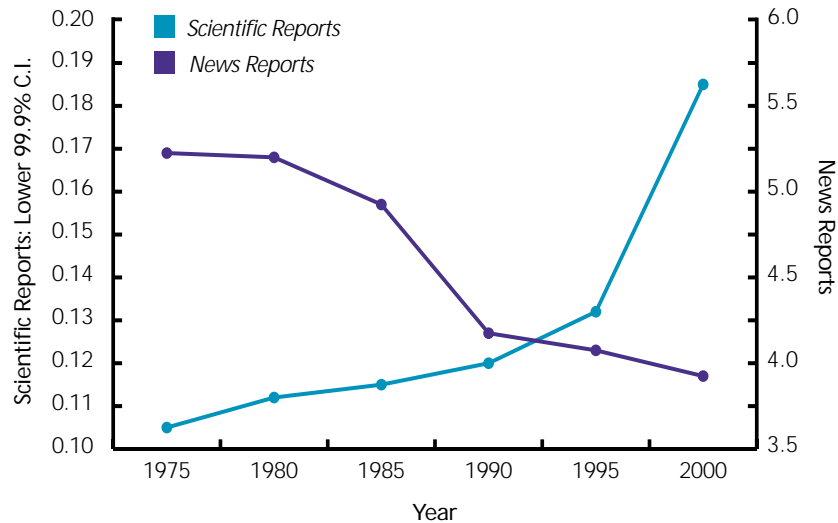
Another problem is that the news media report scientific findings inaccurately. A colleague and I started a project examining news media accuracy after *US News and World Report* published an article that talked about the terrible state of research on media violence and reported that there was no good research and no consensus in the field. We wrote a letter to the editor saying that, in fact, it is one of the best research literatures in all of behavioural science; and they would not publish the letter. How often is this kind of biased report going on?

So we did a series of meta-analyses of all the research on media violence effects on aggressive behaviour. Figure 6 shows the results. We took everything that had been published up to 1975, did the meta-analysis, and found that the lower boundary of the confidence interval – an extremely conservative estimate of the effect size – was above zero, indicating that there was quite a strong statistically significant effect. This was clear even in 1975. We then did all studies up to 1980, including all those before 1975; then up to 1985; and so on, in a cumulative meta-analysis up to 2000. The blue line on the graph shows the lower boundary of the confidence interval, giving a very conservative estimate of the effect size. This blue line shows how the state of knowledge changed over that time period.

We also went back and got together all the news reports we could find that talked explicitly about media violence studies, and we trained a number of research assistants to read these reports and rate them for how strong a message was being sent about the potential problems of media violence. A high score means a stronger statement by the article that violent media might be harmful to children, and a lower score indicates a belief or a statement that there is not much evidence. The purple line on the graph in Figure 6 shows the average score for each of the corresponding time periods. In 1975, the scale value was relatively high.

...if you are an average parent, if you are not reading the *Journal of Personality and Social Psychology* every month, or the *Psychological Bulletin*, or other relevant scientific journals, you are not going to know about a lot of these studies; you are going to read the newspapers and magazines and be misled.

Figure 6: The accuracy of news reporting of scientific findings, 1975 to 2000³



The two lines on the graph should be parallel if the science is what is driving the news reports. When we began the study, I had expected the news reports line to be flat – in fact, it goes down. But if you are an average parent, if you are not reading the *Journal of Personality and Social Psychology* every month, or the *Psychological Bulletin*, or other relevant scientific journals, you are not going to know about a lot of these studies; you are going to read the newspapers and magazines and be misled. And you have been badly misled, at least if you were in the United States during that period of time. So this is the second reason why a lot of parents do not take the problem seriously.

■ Belief in serious potential harm is personally threatening: “I’m a good parent”

A third possible reason, and this is speculation on my part, is that a lot of parents seem to find it threatening even to think that some things that they have been allowing their kids to do might be harmful. So you get, “Well, I’m a good parent”, or in some cases, “I’m a good public servant, I look out for the interests of children and youth”. Such people do not do things that allow harm to happen, so therefore media violence cannot have a negative effect. If it had a negative effect that would mean I’m a bad parent and obviously I’m not a bad parent (or bad legislator...).

I see this reaction a lot. And usually, when it occurs, there is also a lot of hostility directed towards me, as a researcher, because these people think I am saying that they are bad parents. I am not saying anybody

is a bad parent, at least, perhaps, not until they know the evidence and then fail to act on it.

■ Personal experience with violent media: “I’m not violent, it hasn’t changed me”

A fourth reason is that we all have personal experience with violent media, and most of us have not killed anybody or been arrested for assault, therefore the research must be wrong. That is the *causality conundrum* again, a misconstrual of what the researchers are saying, and a misconstrual of what causality means in the scientific sense. Or people say, “I haven’t noticed a change in my attitudes or my social perceptions, the way I see the world”. But people seldom notice when their attitudes change, even attitudes towards very important issues. It is rare for an event to happen that causes a change that you notice, and sometimes people notice changes that have not actually occurred. So this whole line of reasoning – “well I haven’t noticed a change, so the research must be wrong” – is flawed. It is irrelevant whether or not a person has noticed change in themselves.

■ The current rating systems do not work

There is another whole category of reasons why parents do not effectively screen for media violence, at least in the United States, and probably other places as well. At least on some occasions, the current rating systems do not work.

Rating systems in the United States differ by outlet; for example, the video arcade rating system is

³ Reported in Bushman, B.J., & Anderson, C.A. (2001). Media violence and the American public: Scientific facts versus media misinformation. *American Psychologist*, 56, 477–489.

different from the console and home game rating system. Studies have shown that they are not well understood by consumers – neither parents nor kids. What many kids *do* understand is that the more extreme the rating, the more they want to play it because that makes them feel older.

The rating systems are not followed reliably by retail outlets. In the United States ratings are voluntary, but the retailers and the industry have agreed to abide by the set of rules that they set up. In fact, they do not abide by their own rules. They market the most violent games to kids sometimes as young as six years old, and they provide toys for some of the most violent games. I do not know many eighteen-year-olds who play with action figures, but these are very much a marketing feature for the violent video games.

Furthermore, the Entertainment Software Ratings Board (ESRB) is funded by the video games industry. If you take the ESRB rules for creating a rating and give them to parents or teenagers, get them to read through the rules and be sure that they understand them, and then apply them to video games, the ratings they provide do not match those assigned by the ESRB. In particular, games that the industry rates as appropriate for teens are rated as mature-age by parents and teens, and many games rated as appropriate for everyone, the “E” rating, should be rated for teens or higher according to parents who are not funded by the video game industry.

The industry violates its own standards, it markets violent video games to under-age kids, and retailers will very often sell the violent games without checking age or ID. In several different “sting” operation type studies, one conducted by the Federal Trade Commission, one by the National Institute on Media and the Family, and others by other not-for-profit groups, roughly 85 percent of the time a thirteen-year-old can go into a retail outlet and walk out with an “M” rated game that they are not supposed to be able to buy; they do this with no questions asked, no difficulty. If they have the cash they can get the game. And of course now they can download the games from the internet, often free. There are demonstration versions of most games on the internet, and these very often contain most, if not all, the potential violent content.

The United States Army has created its own violent video game that you can download from the internet. It is supposed to explain what the United States Army is about, but it includes sniper training among other things. So the United States Government is adding to this problem.

Games rated “E”, suitable for everyone, any child, any age, can contain any of the following types of content: mild animated violence, mild realistic violence, animated violence, realistic violence, animated blood, and realistic blood. There are two categories in the ESRB categorisation scheme that are prohibited for “E” games: animated blood and gore, and realistic blood and gore. Both of these can appear in teen games for thirteen years of age and above.

Copycat crimes

I would now like to turn to copycat crimes, where someone commits a crime and uses techniques very similar to what they saw in a video game. They are relatively rare, but they are very newsworthy and you see them all the time – the Columbine High School shootings in Littleton Colorado, for example. *Doom* was the game that was involved at Columbine. *Grand Theft Auto*, in its four or five versions, has been linked to crime sprees in Oakland California and homicides in Long Prairie and Minneapolis Minnesota, Medina Ohio, and Wyoming Michigan. There is a long list of such things, many more than I would have guessed when video games first started becoming violent, because there do not seem to be many copycat crimes from the television and movie domain. There seem to be more from video games, although that is hard to test scientifically.

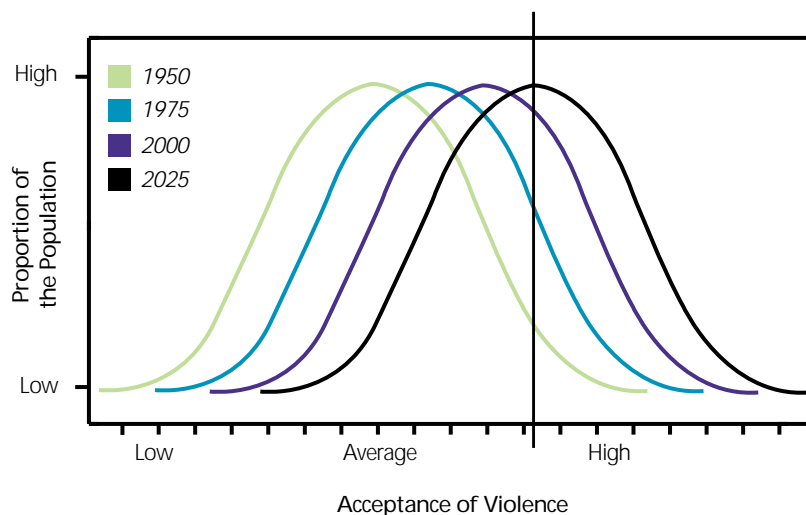
...the whole culture seems to be becoming more accepting of violence in a variety of different contexts.

Creeping cultural acceptance of violence

A more important problem with all media violence is that cultural shifts may well be emerging; that is, the whole culture seems to be becoming more accepting of violence in a variety of different contexts. Attitudes towards violence become more positive, there is greater acceptance of violent or forceful solutions, at the individual level of response, towards spouse, children or coworkers. There was a spree over a three or four year period where there were a lot of homicides committed by disgruntled postal workers. It became a local joke, and now there is a popular video game called *Postal* where you get to be a disgruntled postal worker and you can go around and kill people.

The increased acceptance is even possibly at a societal level, in the acceptance of war as an

Figure 7: Creeping cultural acceptance of violence



instrument of foreign policy, and in terms of insensitivity towards victims of violence.

I have started to think about this as a creeping cultural acceptance of violence – in the home, in the workplace, in the schools, and possibly even in public policy. The graph in Figure 7 plots a hypothetical speculation of what might be going on – there is no data I know of that would actually allow one to test this at the current time.

The graph plots some normal distributions. When you measure many different human characteristics – I have called this characteristic ‘an acceptance of violence’ – you typically get this bell-shaped distribution, with a few people at the very low end of the distribution, a few people at the high end, and most somewhere in the middle, around the average – in this case, around the average level of acceptance of violence. Those at the high end are typically the people that you worry about in terms of their potential to commit violent acts, to become violent in a conflict situation, whether with a spouse, a coworker or whoever. I have selected four dates for the graph. 1950 was before television and movies really became violent, and the curve on the graph may represent where our society was one point in time. Twenty five years later, had our acceptance of violence increased, as shown in the blue curve? By now have we reached the black curve? And in 2025 will our acceptance be higher still? Will the average in 2025 be as high as the high end of the 1950 level of acceptance of violence?

If this is what is truly happening – and there are many debates starting within the United States about

the lack of civility at all levels of society, in all kinds of contexts – we now have a huge proportion of our population accepting violence at a level that would have been unacceptable in 1950. Furthermore, the concern is not only about what is happening now. As each generation gets subjected to higher and higher levels of violence, gets desensitised, are we moving only in one direction and not in a very peaceful direction? I don’t know, but I’m concerned.

The role of science in public policy

In my view, the proper role of science in public policy is to provide factual answers to key questions. This requires good theory and good testing of the theory, which means providing data and, often, revision and retesting of the theory on the basis of the data. Once you have good data supporting good theory, and you really understand the phenomena involved, then you can weigh in as a scientific expert in a particular area and comment on what kind of policies might be most likely to work and what would not work.

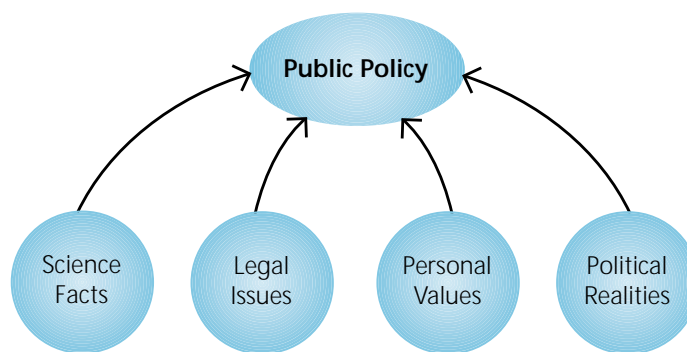
How many of you have heard of midnight basketball? This was a solution proposed to deal with some of the inner city crime problems in the United States. The idea was to have police departments find somebody to get the games together and organise groups to play basketball at midnight in a nice friendly environment, and this would solve inner city crime. Think about it. You take the people who are, for whatever reason, already predisposed to violence, you make them more physically fit, you introduce them to other

neighbourhood gang members and likely violent offenders and help them become friends, and this is supposed to create a safer community! You now have physically fit, well organised young thugs. Midnight basketball did not work, but we did spend money on it. No one asked the true scientific experts about this plan.

Science facts, then, are one part of public policy, a very often *ignored* part in the United States at least. But there are other things that must also be taken into account, as shown in Figure 8, including legal

issues and personal values. For example, you may believe with all your heart that the science shows that strict handgun control legislation reduces homicide rates, but still be against gun control in the United States; you may value the right to own a handgun more than you value a relatively low homicide rate. There is nothing illogical about that. Personal values do play a role. Then, of course, political realities have to be considered. My point is simply this: scientific facts do not automatically imply a particular public policy. Other factors are also important.

Figure 8: The role of science in public policy



Take-home messages

We know without a doubt that media violence increases the likelihood of aggressive and violent behaviour in the immediate situation as well as over time, if there is repeated exposure over time. The research evidence is clear, consistent, and conclusive, and has been for quite some time.

We know that the negative effects of media violence are large enough to warrant serious concern by society; and violent video games are likely to be worse than television or movies, although there is not a good research base on that question yet. While it sounds simple, it turns out to be a very difficult question to research.

We also know that most parents seriously underestimate the long-term impact of media violence, and that self-imposed regulation, at least in the United States, is not working.

At the same time, we know that *non-violent* video games can teach a positive lesson – a fact that should not get lost in all the discussion of the negative effects.

How can you tell if a game is potentially harmful?

How, then, can you tell if a video game is bad or violent or potentially harmful? I tell parents to look at the game (typically that means having someone else demonstrate it because most parents cannot play it well enough to get to the really *good* stuff), and ask yourself these questions:

- Does the game involve characters trying to harm others?
- Does this happen frequently, more than once or twice in a 30 minute period?
- Is the harm rewarded in any way?
- Is the harm portrayed as humorous?
- Are non-violent solutions essentially missing from the game or less fun than the violent ones?
- Are realistic consequences of violence missing from the game – consequences not just to the victim of violence but to the perpetrator as well?

If two or more answers to these questions are yes, I urge parents to think very seriously about what that game is likely to be teaching before allowing their children access to it.

Thank you for your attention and for the invitation to speak with you today.

Resources

Further information

You can get the full text of Professor Anderson's recent articles (since 1995) on video game violence and on media violence in general from the "Recent Publications" page on his website at <http://www.psychology.iastate.edu/faculty/caa/recpub.html>

Here is a partial listing of relevant works that you may want to explore:

- A 2004 *Advances in Experimental Social Psychology* article titled "Violent video games: Specific effects of violent content on aggressive thoughts and behavior." <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/04AESP.pdf>
- A 2004 *Journal of Adolescence* article titled "An Update on the Effects of Violent Video Games." <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/04A.pdf>
- A *Psychological Science in the Public Interest* article on "The Influence of Media Violence on Youth" which appeared in print in March of 2004 (though it carries a December 2003 publication date). <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/03ABDHJLMW.pdf>
- A 2003 article in the American Psychological Association's electronic publication *Psychological Science Agenda* on violent video game myths and facts. <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/03A2.pdf>
- A *Journal of Personality and Social Psychology* article published in May 2003, on "Exposure to Violent Media: The Effects of Songs with Violent Lyrics on Aggressive Thoughts and Feelings." <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/03ACE.pdf>
- A *Science* magazine "Perspectives" article published in March 2002, on "The Effects of Media Violence on Society." <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/02AB2.pdf>
- An *American Psychologist* article published in June 2001, reports on the lack of correspondence between the media violence scientific literature and news reports about the media violence research. <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/01BA.ap.html>
- A *Psychological Science* article, published in September 2001, reports a meta-analysis of all of the relevant research on violent video games and aggression. <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/01AB.pdf>
- A *Journal of Personality and Social Psychology* article published in April 2000, reports two studies on violent video games. <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/00AD.html>
- The written testimony of Professor Anderson given on March 21 2000, at a hearing of the US Senate Commerce Committee was on "Violent Video Games Increase Aggression and Violence." <http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/00Senate.html>

For other works of Professor Anderson you can visit his home page at:

<http://www.psychology.iastate.edu/faculty/caa/index.html>

Visit the following website to access the "Joint Statement on the Impact of Entertainment Violence on Children" that was presented at the United States Congressional Public Health Summit on 26 July 2000 from the following web page: <http://www.aap.org/advocacy/releases/jstmtevc.htm>

Here is a link to the videotaped series of lectures on *The Impact of Entertainment Media Violence on Children and Families*, and related materials, by the Iowa State University Extension Office:
<http://www.extension.iastate.edu/families/media/>

By clicking on the following link, you can download a brief letter from Professor Anderson to parents with recommendations about video games.
http://www.psychology.iastate.edu/faculty/caa/VG_Recommend.pdf

Professor Anderson has put together a brief Frequently Asked Questions (FAQ) page on media violence and aggression, with an emphasis on violent video game research. You can download this from his home page at:
<http://www.psychology.iastate.edu/faculty/caa/index.html>

Other Useful Websites to explore

www.youngmedia.org.au
Young Media Australia

A useful resource for parents and others interested in the effects of media on children and young people, is the website of Young Media Australia or YMA. The website provides information that will assist parents and others make sound decisions about children's media experiences. In particular, the site focuses on the effect violence in the media has on children and young people.

www.vicparenting.com.au
Victorian Parenting Centre

The Centre has developed a Parenting and Multimedia Information Series that contain suggestions and strategies for parents to assist their children to obtain the most benefit from media use. You can download (in pdf format) copies of the five guides from their website.

www.oflc.gov.au
Office of Film and Literature Classification

The website aims to inform the choice of parents by classifying films, computer games and publications for the Australian community. You can download a copy of the Guidelines for the Classification of Computer Games – simply click on 'Classification Information', scroll down to 'Classification Guidelines' and click on 'Computer Games'.

<http://www.mediafamily.org/index.shtml>
National Institute on Media and the Family

The Institute helps families and educators to maximise the benefits and minimise the harm of mass media on children through research, education and advocacy. You can help your family to make wise media choices with the many online tools and resources.

<http://www.colorado.edu/cspv/>
Centre for the Study and Prevention of Violence

Founded in 1992, the Centre provides informed assistance to groups committed to understanding and preventing violence, particularly adolescent violence.

<http://www.lionlamb.org/index.htm>
The Lion and Lamb Project

The mission of The Lion and Lamb Project is to stop the marketing of violence to children. This is achieved by helping parents, industry and government officials recognise that *violence is not child's play* – and by galvanising concerned adults to take action.

<http://curry.edschool.Virginia.EDU/curry/centers/youthvio/>
Virginia Youth Violence Project

The Project explores effective methods for youth violence prevention and school safety.

<http://www.childrenow.org/>
Children Now

This organisation utilises research and mass communication to make the wellbeing of children a top priority across the United States.

<http://www.sosparents.org>
Centre for Successful Parenting

The Centre is dedicated to protecting children from media violence.

<http://www.acmecoalition.org/>
Action Coalition for Media Education

ACME, free of corporate media funding, is a strategic network linking media educators, health advocates, media reformers, independent media makers, community organisers and others.

Victorian Parenting Centre

The mission of the Victorian Parenting Centre is the pursuit of new knowledge of parenting that enhances the wellbeing and resilience of children and their families.

The Centre engages in a range of activities including:

- research and evaluation projects relating to parenting and family intervention;
- development of programs and resources;
- trialling and evaluation of programs for families;
- delivery of professional training programs; and
- provision of expert advice and consultation to government and non-government agencies on issues related to parenting education and support.

To stay up to date with the Victorian Parenting Centre's programs, professional training opportunities and resources, visit our website and subscribe to the *vpc e-news*.

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