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The Cultural-Psychological Foundations for Violence and Nonviolence. An Empirical Study

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Abstract: The objective for this project is to examine how people think and make decisions about using violence. What are the factors and reasons that lead people to be able to pull the trigger? Differently from most existing literature on the topic of violence that looks for its causes after a violent act has happened, this research project was devoted to the study of psychological processes that lead to such acts. I used a quasi-experimental setting involving different images projected onto a screen in front of the subject. Each subject was asked to assess and make decisions about "shooting" the projected image. An immediate follow-up questionnaire was also used in the procedure to obtain data on each research participants' experience with violent movies and video games. Subjects (N=30 from Worcester, MA and N=40 from Tallinn, Estonia) used their own personal cultures to construct meanings about the image leading to the decision to shoot or not. The main focus of this paper involves the influence of video games and the willingness of a subject to shoot. An image from the video game Duck Hunt was compared to two other images involving ducks. Most subjects from the United States chose to shoot at the video game duck, but not at the other duck images suggesting that the video game framework provides a foundation for a subject to act aggressively toward an image. Many subjects from Estonia did not recognize the video game duck, and thus much less shooting occurred.

Table of Contents

1. Introduction

Murder, the unlawful act of killing a person, is always a major concern in any society. Why does a person decide to take another's life? What can be done to stop these acts of violence? In the United States the homicide rates have fluctuated across the years. According to the rates reported by the FBI Supplementary Homicide Reports (1999a), between 1960 and the late 1970s homicide rates doubled reaching its peak in 1980 with 10.2 homicides per 100,000 people. The ups and downs continued with the latest data from 1999 showing the homicide rates are at the lowest they have been since the late 1960s with only 5.7 per 100,000 people. [1]

Homicide is also a current concern in Estonia. During the 1990s the homicide rate began to grow. In 1992 the homicide rate was 15 per 100,000 inhabitants growing to its peak in 1994 of 24.2. There has been a decline during the past few years with less than 14 homicides per 100,000 inhabitants in 1999 (Estonian Human Development Report, 2000). [2]

After the peak in 1980 of the homicide rates in the general population in the U.S., the older groups declined while the homicide rates among young people ranging in age from 14-24 years old has increased. The young offenders committing homicides has doubled between 1985 and 1993 for 18-24 year olds. There has also been a great increase for 14-17 year olds. Currently the rates have decreased, but the offending rates still remain higher among young adults compared to the rest of the population (FBI Supplementary Homicide Reports (1999b). Juveniles in Estonia also account for a high percentage of criminal acts. In 1998, juveniles accounted for 17.5% of all criminal acts registered in Estonia. Following Estonia's independence in 1991, there was an increase in juvenile delinquency, which is related to the increase of drug and alcohol use by young people (HEIDO, 2000). Homicide rates may be currently decreasing, but what about the level of gun violence? What percentage of homicides involves a gun? [3]

In the United States in 1996, 34,040 people died from gunfire: about 54 percent were from suicide, 41 percent from homicide, and the remaining 3 percent were unintentional. The eighth leading cause of death in the U.S. is from gun violence (Office of Juvenile Justice and Delinquency Prevention, 1998). [4]

Is there any difference among youths in type of weapon used? The answer is yes. As with the general rise in homicides by youths, the use of guns also has increased in the United States. Gun violence has decreased for adults age 25 and older, and increased for juveniles and adults under age 25. Handguns are

used as the weapon of choice for the majority of all homicides regardless of age. However, the huge gap for the young adults in the preference of using a gun is quite distinct and concerning for society at large. It is obvious that violence is still a current and important problem throughout the world, and solutions are still hard to come by. [5]

1.1 Influence of media sources on violent acts

The increase of violent acts among young people in the United States has sparked a renewed interest in the role the media has in creating and perpetuating violent acts, including violent video games and violent movies. The current body of research suggests that there is a relationship between media and increase in aggression. [6]

1.1.1 Violent movies

Movies are "a reference point for reality (and so people say, "That's just like in the movies!") at the same time that it is recognized as being "just a movie"(KRASNIEWICZ, 1992, p.31). Films create stories and situations that are imaginative, but also seem real. This sense of reality is what can be frightening to society because of the violent nature of many movies that are shown today. ANDERSON (1997) examined the impact of automatic priming of aggressive thoughts through exposure to a violent movie clip. The group of subjects that were primed with the violent movie clip reported higher levels of anger and hostility compared to the control group. Also, certain types of people may be more susceptible to such priming. People who are nonaggressive (low trait hostility scores) are more likely to be affected by aggressive media. Watching violent movies has much less impact on individuals that are already aggressive in nature. [7]

1.1.2 Violent video games

Video games have recently been in the news due to the school shootings in the United States. The media has suggested that the students involved in these shootings may have been influenced by violent video games. A federal judge has dismissed a lawsuit filed by the victims of the Columbine shooting against the software companies that produce video games. The families that sued alleged that these companies influenced the actions of the two shooters (VARANINI, 2002). [8]

Children, ages 8-18, spend over 40 hours per week using some form of media entertainment. Boys, ages 8-13, play video games (both computer and console) over 7.5 hours per week. Adolescent and college aged individuals also frequently play video games, about 15% of college students reported playing 6 or more hours of video games a week (ANDERSON & BUSHMAN, 2001). [9]

While the vast amount of research involving video games has surrounded the negative aspects of playing such games, there are beneficial skills that children

can gain from playing video games. Video games help children learn eye-hand coordination and spatial skills. Many types of games, such as fantasy and adventure games, allow the children to be creative and improve their problem solving abilities (GREENFIELD, 1984). [10]

These positive characteristics are often overshadowed by the emphasis that is placed on the violent nature of certain games. A collective look at the existing literature on the relationship between video games and violence shows that short-term exposure to violent video games temporarily increases aggression (ANDERSON & BUSHMAN, 2001). [11]

What role do video games have on a long-term basis? ANDERSON and DILL (2000) have explored the role that playing video games has on a person's aggression level. They suggest that playing violent games can have long-term effects. Playing more video games can cause a person to become desensitized and more aggressive in outlook. One study asked subjects to list their 5 favorite video games and rate the games on violent content and graphics and how often they played the games. The subjects were also asked to place the game in a category (i.e. fighting with weapons, sports, etc). They found a significant relationship between aggressive personality traits and exposure to violent games. They further concluded that in addition to the priming of aggressive thoughts through violent video games a person might also need, "immediate provocation (noise blast) by an opponent to trigger higher levels of aggression" (ANDERSON & DILL, 2000, p.786). Some disagreement occurred between the subjects and the experimenters in terms of how to categorize certain games. Is Super Mario Brothers an aggressive game? Some might say yes while others would say no. These types of inconsistencies may lower the strength of some of the relationships found in such studies. [12]

The research presented here explores some of these issues; do watching and enjoying violent movies make a person more likely to act violently? Do video games that contain violence have any impact? These questions alone, however, cannot be the sole basis of understanding violent acts. Other psychological processes must also be examined. [13]

2. Psychology of Violent Acts

While watching violent programs and playing violent games may be related to violent acts, the main issue under investigation here is how each individual person constructs a decision in a given situation. We are all constantly faced with making decisions in our daily lives. What to wear each day, what to eat for each meal, how to spend our free time, etc. These types of decisions are usually made without much thought about potential consequences of the decision. These types of "simple" decisions do not have much substance or great impact on others. However, some decisions do have great consequences. [14]

How does a person make the decision to pick up a gun and shoot another person? Is it simply that a person watches a movie or plays a game and imitates

these acts? What are the main factors that influence decisions? Every decision is based on past experiences and past circumstances that can be used as reference points for the current decision. Each person has their own personal-culture that they construct and that they use to express themselves. Each person is constantly internalizing and externalizing the world around him or her (VALSINER, 2000, p.56). Also, each person is influenced by outside forces, other people or institutions, for example. [15]

2.1 Meaning construction

2.1.1 Objects

In addition to outside influences of other people, public exposure to objects and images also become part of a person's personal culture. For example, vegetarians are likely to have different views about killing animals than a person who engages in hunting. Each person has his or her own personal cultures, which shape their views and decisions. [16]

2.1.2 Games

A game is, "a form of play, amusement, recreation, sport, or frolic involving specific rules, sometimes utilizing a set of equipment, sometimes requiring skill, knowledge, and endurance" (AVEDON & SUTTON-SMITH, 1971, p.2). Games imply opposition between players; one is "the winner" and the other the "loser." The basic structure of a game can be generalized; many different types and versions of games exist. Games are objects of entertainment and vary across cultures and time periods. [17]

Young children for hundreds of years have been involved in playing games and singing songs. Some of these games are based on acts that have negative connotations, such as warfare and stealing. The game *Prisoner's Base*, an imitation of warfare, takes place between two groups of children acting as opposing armies. In the game *Stealing Grapes*, the following dialogue is used to begin,

> "What are you doing in my vineyard?"
>
> "Stealing grapes."
>
> "What will you do if the black man comes?"
>
> "Rush through if I can." (NEWELL, 1903, p.167) [18]

The use of war and of stealing in such games appears to be condoning, or at least not punishing, illegal acts. The child would try to escape with the stolen grapes in the game to avoid punishment. [19]

Today, the popular games have changed to video games rather than physical games or chasing games of the past. As discussed above, video games can have both positive and negative qualities associated with them, as did games of the past. [20]

Categorizing an object as a game can have different meanings for each person depending on their own personal-cultures and experiences with games. However, the basic definition of a game, as stated above, is generally a universal standard. Some skills are needed, physical or mental, to achieve a desired outcome. [21]

2.1.3 Distancing

People also use distancing as a strategy for meaning construction. Distancing occurs when a person uses reflection to take into account past experiences, impacts on the future, and other relevant issues that could be impacted by the current situation. "Without distancing, no considerations by a person of contexts other than the given here-and-now would be possible" (VALSINER, 2000, p.51). Distancing and the creating of signs are used in the construction of meaning. [22]

In order for a person to remember a past event a mental separation must occur from the present. When a parent asks a child to describe an experience he or she has had in the past, the child must mentally separate him/herself from the here and now and reconstruct the response (SIGEL, 2002). For a memory to be recalled a person must separate him/herself from the present to be able to construct a response about a past event. [23]

During wartime soldiers often use distancing mechanisms when deciding whether or not to shoot at an "enemy" soldier. New mechanisms for psychological distancing are making these decisions easier. Night-vision or thermal imagery converts the "enemy" soldier into, "an inhuman green blob." This technology and the distancing process have been referred to as "Nintendo warfare," shooting at blobs (as in a video game) instead of seeing the actual person being shot (GROSSMAN, 1996, p.169). A person uses distancing, along with the other methods described above, to help construct meanings in order to help solve a problem. How can we experimentally explore how a person makes such decisions? The best method that can be used to explore the thought process is a microgenetic approach. [24]

2.2 Microgenesis

A useful definition of microgenesis for the current project is, "the sequence of events which are assumed to occur in the temporal period between the presentation of a stimulus and the formation of a single, relatively stable cognitive response (percept or thought) to this stimulus" (FLAVELL and DRAGUNS, 1957, p.197). It is this idea of a sequence within which we can study the decision-making process. This is the technique that I have incorporated into the study of decision-making strategies used by individuals when they are placed in a setting where they have the opportunity to act in a violent manner (shooting at an image). [25]

DUNCKER's research on problem-solving and his "thinking aloud" methodology were utilized in the experimental setting for the present study. Requesting subjects to "think aloud" allows the researcher to explore their thought process

while they are attempting to solve a problem. The solution to a problem involves the following process,

> "The final form of an individual solution is, in general, not reached by a single step from the original setting of the problem; on the contrary, the principle, the functional value of the solution, typically arises first, and the final form of the solution in question develops only as this principle becomes successively more and more concrete" (DUNCKER, 1945, p.8). [26]

A solution to a problem usually takes more than one step to solve. The first step tends to be "the principle" or the main idea for the solution, which is refined and develops into the concrete final solution. Problem-solving is more than one thought; it is a process that eventually leads to a final solution. The thinking aloud protocol is useful for uncovering the thought process that a person uses when solving a given problem. [27]

The purpose of this current research is to look further into the causes of violence. In particular, the interest is in the thought process a person uses while they make the decision to use or not to use violence. Looking at the influence video games has on the willingness to shoot and the reasoning involved is the primary focus of the current paper. An experimental setting was used, along with a questionnaire, in order to uncover the thought and decision making process. [28]

3. Method

3.1 Subjects

A total of 70 subjects participated in this study. There were 30 subjects from Worcester Massachusetts: 17 female and 13 male subjects. The ages of the participants ranged from 18 to 46 with an average age of 23.5. Excluding the 2 outliers, of 42 and 46, the average age is 22. 11 of the subjects grew up outside of the United States. There were 40 subjects from Tallinn, Estonia: 34 female and 6 male subjects. The ages of the participants ranged from 21 to 34 with an average age of 24. Subjects were volunteers and were recruited through word of mouth and classroom signups. [29]

3.2 Research design

3.2.1 Experimental setting

A microgenetic approach was used in the experimental setting to allow subjects to explain and discuss reasoning beyond the actual decision to shoot or not. The quasi- experimental setting began with different images being projected onto a screen through an overhead projector. The research participant, who stands 20 feet from the screen, facing it, is given the following instructions:

> Different images will appear on the screen and there are three tasks you should complete. First, describe the image and any feelings or thoughts that you have about

> the image. Second, make a decision to shoot or not to shoot at the image. If you do want to shoot you may use the toy gun and shoot. Third, explain why you made your decision to shoot or not to shoot. I will begin with a practice image to be sure you understand the procedure. The same procedure will be used for each of the images. [30]

To summarize, the subjects were asked, first to describe *what they saw and how they felt or any thoughts that came to mind* about the image on the screen. Second, they had to make a decision *whether to shoot or not to shoot* at the image. Third, they were instructed to *explain how they made their decision*. The entire procedure was audio-recorded and transcribed subsequently. [31]

3.2.2 Questionnaire

Once the experiment was completed the subject answered a questionnaire. The questionnaire asked the subjects to elaborate further on the experimental setting. Two questions about the experimental setting were, "How did you feel as you aimed at the target?" and "Did you hesitate, or have any trouble when making your decision about shooting at the image? Please explain your feelings." These questions were asked about all of the images presented during the experiment (see Appendix for complete list of images). [32]

Basic information about the subject such as age, gender, where they grew up and religious beliefs was asked. Furthermore, the subjects were asked questions about video games, including how many hours they had played certain violent games. The subject's were also asked to rate the level of violence and the level of enjoyment of certain violent movies (90 movies were included). [33]

4. Empirical Evidence: Conditionality of Action

The main focus of the analysis presented in this paper will be on 3 images: a cartoon duck from the video game Duck Hunt, a statue of a bronze duck, and an image of 2 living ducks. A brief explanation of these images follows (see Appendix for complete list of images). [34]

First, an image of a cartoon duck from the video game Duck Hunt was portrayed. This duck is a well-known image for most children and adolescents. Duck Hunt was one of the first gun games and was a game that was included with the purchase of the original Nintendo game system. Two other duck images were used as contrasting images. These images were chosen because they lacked the symbolism associated with the video game duck. These images were considered neutral, an image of a bronze duck statue and an image of 2 living ducks. This group of images allows us to see what impact an image from a video game has on a person's decision-making strategy. Are people more willing to shoot at a cartoon duck from a video game than they are to shoot at other duck images? If so, what are the reasons behind this willingness? The next section will begin with an overview of all of the data collected followed by a breakdown of the duck images discussed above. [35]

4.1 General results

The decision to shoot at the above-mentioned images, as well as another group of images that has been analyzed elsewhere (a Ku Klux Klan member, Hitler, an unknown old man, and 4 bottles), is summarized in Table 1 and Table 2 below. The charts begin with the first image of a typical bull's eye target image (red and white concentric circles). This image many of the subjects (23 out of 30, 76.7% and 28 out of 40, 70%) chose to shoot, and it set the stage for all of the following images. Overall, the subjects from the United States shot at many more images than the subjects from Estonia. While the data about whether a subject chose to actually "pull the trigger" is instructive as a general background, it is not the main focus of the analysis. The reasoning behind the decision is the focus and will be discussed throughout the rest of the analysis section.

Images **Subjects**	**Bull's-eye (target) (1)**	**KKK Member (6)**	**Old Man (7)**	**Four Bottles (8)**	**Hitler (18)**	**Duck Hunt (9)**	**Bronze Duck (10)**	**Live Ducks (11)**	**Total**
1	X			X		X			3
2	X			X	X	X	X	X	6
3		X			X	X			3
4	X					X			2
5	X			X	X				3
6	X								1
7	X			X		X			3
8	X			X	X				3
9		X							1
10	X					X			2
11					X				1
12	X					X			2
13									0
14	X			X		X			3
15	X			X		X			3
16									0
17	X	X			X				3
18	X					X			2
19	X					X			2

20	X1			X1		X1			3
21	X	X		X	X	X			5
22		X			X				2
23	X	X			X	X			4
24					X				1
25	X					X			2
26	X			X		X			3
27	X								1
28	X	X		X	X				4
29	X			X		X			3
30	X	X							2
Total	23	8	0	12	11	17	1	1	73
Average	76.7%	26.7%	0.0%	40.0%	36.7%	56.7%	3.3%	3.3%	2.4

Table 1: Shooting Chart for Subjects from the United States (* X indicates subject shot at image; * X1 indicates subject said she would shoot at image, but did not actually use the toy gun to shoot) [36]

Images **Subjects**	**Bull's-eye (target) (1)**	**KKK Member (3)**	**Old Man (4)**	**Four Bottles (5)**	**Hitler (10)**	**Duck Hunt (6)**	**Bronze Duck (7)**	**Live Ducks (8)**	**Total**
1									0
2									0
3									0
4	X			X		X			3
5	X					X			2
6	X								1
7	X			X					2
8	X								1
9	X								1
10	X			X					2
11	X1					X1			2
12									0
13	X1								1

14									0
15	X								1
16	X								1
17	X								1
18	X					X			2
19	X			X					2
20									0
21	X1			X1					2
22	X								1
23	X								1
24									0
25	X1					X1			2
26									0
27									0
28									0
29	X			X					2
30	X					X			2
31	X			X					2
32	X			X					2
33	X								1
34	X	X		X	X	X			5
35	X								1
36	X								1
37									0
38	X1			X1					2
39	X		X						2
40									0
Total	28	1	1	10	1	7	0	0	48
Average	70.0%	2.5%	2.5%	25.0%	2.5%	17.5%	0.0%	0.0%	1.2

Table 2: Shooting Chart for Subjects from Estonia [37]

4.2 Shooting decisions and reported relation to violent movies among the subjects from the United States

As noted in the introduction, movies have recently been thought to possibly be related to, or a cause of, violent acts. In order to see if our subjects may have been influenced by movies, the questionnaire asked about 90 "violent" movies (all of the movies contain some type of violence, fist fighting, karate, shooting etc). The subjects were asked to rank the movies violence level from 1 (very little violence) to 5 (extreme violence). The subjects were asked to rate the level of enjoyment from despise to excellent. In order to calculate percents, the total number of movies the subject rated was divided into Violence Enjoyment (High score of violence 4 or 5 and high enjoyment either good or excellent) and Displeasure for Violence (High score of violence 4 or 5 and either despise or bad on the enjoyment rating). Table 3 and Figure 1 below show the movie ratings per subject. [38]

Only one subject showed a strong displeasure for violence based on the movies (Subject 8). Most subjects scored much higher on the Violence Enjoyment Indicator than the Displeasure for Violence Indicator. In order to see how this relates to the experimental setting I will use Subjects 8 and 18 (see Table 3- subjects highlighted in red) to explore this question.

Subject	Violence Enjoyment Indicator	Displeasure for Violence Indicator	Neutral Reaction and/ or Low Violence Rating
1	33.0%	16.7%	50.3%
2	28.6%	14.3%	57.1%
3	12.5%	12.5%	75.0%
4	31.0%	10.3%	58.7%
5	22.2%	0.0%	77.8%
6	11.1%	3.7%	85.2%
7	20.0%	6.7%	73.3%
8	15.4%	53.8%	30.8%
9	34.8%	39.1%	26.1%
10	48.1%	9.6%	42.3%
11	28.6%	0.0%	71.4%
12	54.5%	0.0%	45.5%
13	41.9%	0.0%	58.1%
14	12.9%	16.3%	70.8%
15	38.8%	8.3%	52.9%

16	31.3%	6.3%	62.4%
17	14.6%	2.4%	83.0%
18	50.0%	0.0%	50.0%
19	66.7%	8.3%	25.0%
20	34.8%	4.3%	60.9%
21	36.4%	0.0%	63.6%
22	NA	NA	NA
23	60.0%	13.3%	26.7%
24	45.5 %	0.0%	54.5%
25	25.8%	9.7%	64.5%
26	66.7%	0.0%	33.3%
27	50.0%	11.1%	38.9%
28	59.5%	21.4%	19.1%
29	47.6%	0.0%	52.4%
30	22.2%	13.9%	63.9%

Table 3: Subject Breakdown of Movie Ratings: Violence Enjoyment vs. Displeasure for Violence [39]

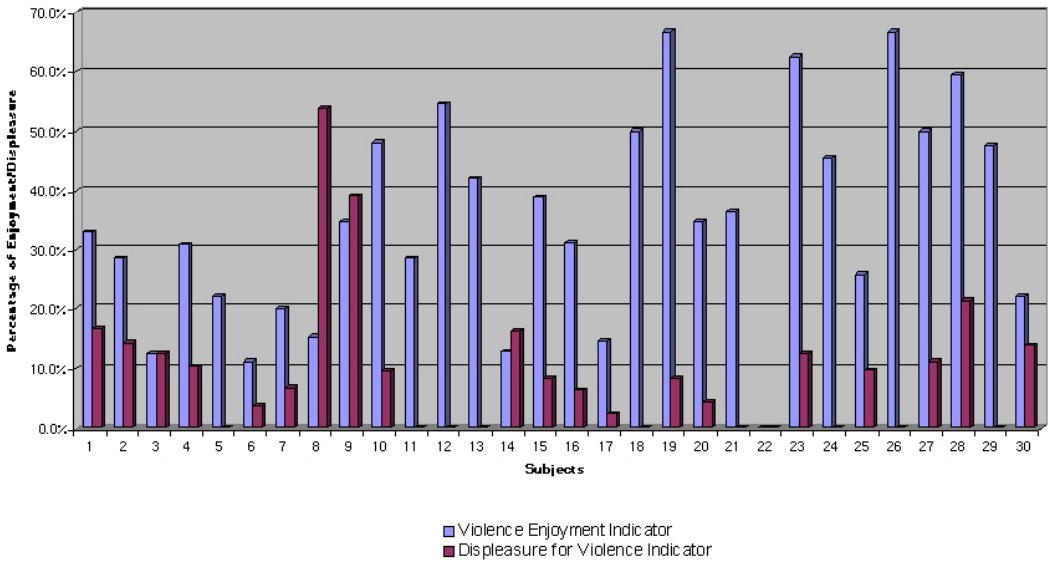

Figure 1: Violence Level Distribution Based on Movies. Please click Figure 1 to receive an increased version. [40]

Referring back to Table 1, Subject 8 shoot at 3 images. Even though she had a strong displeasure for violent movies, she still shot at 3 images (above the average of 2.4 images). The hypothesis that movies are directly related to acts of

violence does not hold true with the results of this particular subject. Subject 8's response to the image of Hitler is illustrative to show how she overcame her dislike of violence to shoot at this image:

> Image 18: *OH YES PLEASE* (shoots 8 times). That's just really contradictory to everything I said but I do not like this man, he has had a lot to do with *my personal history. Like, my grandfather had to flee Germany* and I don't believe in everything, in anything actually that he said and I think he did a lot of *bad things and just a very very bad man* But I think if I actually had him here in person that I would rather, *I don't know if I would actually shoot, you know that...* if I could go back in time and like I would know what he would do *I don't know if I would shoot, I think I would*. [41]

This response specifically shows that past experience can have an important relationship to decisions to use violence. Her personal history led her to immediately shoot at the image of Hitler even though she had a high displeasure for violence indicator based on the movie data. [42]

The other subjects also did not have any specific relationship between shooting and the ratings of movies. Subject 18, shot at 2 of the images based on Table 1 (below average). His violence enjoyment indicator was 50% while his displeasure for violence indicator was 0%, yet he still did not decide to shoot at most of the images. Movies do not appear to be directly related, although further research on this issue would be necessary to uncover if there is some possible indirect relationship. For example, movies could enable a person to shoot or act aggressively, but movies do not determine a person's actions. If a person is shown a picture of a "bad guy" from a movie this may enable them to shoot at this picture; however, watching and enjoying violent movies did not make any of these subjects indiscriminately decide to start shooting at the images in the experiment. [43]

Subjects 9, 19, 23, and 28 (highlighted above in blue) had the highest exposure to violent movies (regardless of enjoyment ratings). These subjects ranked approximately 75% of movies they had seen as a 4 or 5 on violence. Does simple exposure to violence, regardless of whether a person enjoys or dislikes the violence cause a person to act more aggressive? Referring back to Table 1 we can see that these 4 subjects shot at 1, 2, 4, and 4 images. While 2 out of the 4 subjects had a relatively high shooting level of 4 images, the other 2 subjects only shot at 1 and 2 images. This further supports the conclusion that violence exposure is not a main cause of aggressive acts and that other factors are leading individuals to make decisions. [44]

4.3 Decision-making process surrounding duck images (Duck Hunt, Bronze Duck, and Living Ducks)

The role of video games in a person's decision-making process will now be discussed. How is an image from a video game interpreted differently from other images that are in the same genre (here duck images)? [45]

Over half of the subjects from the United States (56.7%) decided to shoot at the Duck Hunt image compared to only 1 subject (3.3%) deciding to shoot at the other 2 duck images. Of those subjects that recognized image 9 as a duck from a video game, 68.2%, decided to shoot. 8 of the subjects did not recognize that the image was from a video game, and 6 out of the 8 (75%) grew up outside of the United States. Almost all of the subjects that grew up in the United States recognized the image from the Nintendo game Duck Hunt (89.5%). This data suggests that there is a positive relationship between recognition of the video game duck and being raised in the United States. [46]

The data from Estonia further shows the difference across cultures in regards to video game knowledge. Only 7 subjects (17.5%) shot or said they would shoot at the Duck Hunt duck. Half of the subjects from Estonia thought this image might be from a video game. All 7 of the subjects that shot thought the image was from a video game. Only 8 (20%) of the subjects knew the specific game that this image was from. This research adds to the evidence that children in the United States play more video games than children in other cultures. There are distinct differences in decision making between those subjects that did know the duck was from a game and those that did not. [47]

There are clear differences in responses to image 9 if the duck was recognized as being from the game. Two examples of responses to image 9 from subjects that had never played the game before are described below:

> Subject 5-Female (U.S.)
>
> Umm... this picture is umm... a bird whose head is green and whose body is white and black. Umm...*it seems someone's drawing, I don't feel like shooting at all, it is just a drawing. I just want to see it*.
>
> Subject 28-Male (U.S.)
>
> That looks like somebody already tried to shoot them. I'm just going to let him go though, he looks like he is already running from somebody, *I'm not really a hunter type of guy. I like wildlife, like I said about the clouds* (reference to previous image) *I like the outdoors. So I'm gonna let him go, it is kind of like a peaceful feeling, ducks and trees*. [48]

Both of these subjects decided *not* to shoot at the image. This image appeared to them to be a drawing of a duck. They did not see this as any special duck in anyway. These responses were unusual among the subjects from Worcester, but very common among the subjects from Tallinn. [49]

Half of the subjects from Estonia fell into the category of not recognizing that the duck was from a video game and this cartoon duck had the same symbolic value as the other 2 ducks. Subject 15 shows how the 3 duck images were viewed in a similar manner.

Subject 15-Female

Image 6-Duck Hunt Image: So this is a flying bird and since I don't very much eat meat and I'm against hunting so *I would never shoot a bird*. No.

Image 7-Bronze Duck: *The same thing*, I could never shoot at an animal.

Image 8-Living Ducks: *This is also a bird*, so... I bet if I was a hunter I would shoot them, they are so easy targets, but I would not. No. I'd probably feed them. [50]

This type of response was much more common among the subjects from Estonia than among the subjects from the U.S. The subjects from the U.S. had a much higher recognition of the video game duck, which led to a different meaning being placed on the video game duck compared to the other 2 duck images. [51]

The subjects that did recognize the duck from the game Duck Hunt reacted in much different ways to the image. The subjects from the U.S. who recognized the duck and decided to shoot did so for two main reasons, first many subjects saw the duck as a "typical target" or something that "is suppose to be shot at." Second, they shot because it reminded them of their past experiences and brought back fun memories from their childhood. These two reasoning mechanisms are described in detail below. [52]

Many of the subjects considered the Duck Hunt image to be like a "target," something that they had to shoot at. For many of the subjects seeing the duck from Duck Hunt was just like seeing a regular target. See Table 4 below for a chart of comparisons between subjects who considered Duck Hunt to resemble a target and the bronze duck, which no one saw as a target. 10/17 (58.8%) of the subjects that shot at the Duck Hunt image referred to it as a target, or something that was suppose to be shot at, the subjects reported this during the experimental setting and/or in the questionnaire that followed.

Subjects from the U.S.	Duck Hunt	Bronze Duck
3-Female	It's duck hunt!! (very excited) Ok, yeah that I have to shoot at, because I use to play this when I was little (Shoots gun). Still not liking that gun sound, but that's a video game where you are suppose to shoot an imaginary gun at the duck and I use to play it so that comes naturally. And it's not real either, which makes it a little easier to shoot.	It looks like a make believe duckling. A statue, but it is not… ummm it's a statue of a duck, *I'm not going to shoot because it is statue and it's a duck. Its not living but that doesn't change anything* so, I'm not going to deface public property.

4-Female	Umm.. I see a bird on a video game and it makes me feel like playing a video game so I'd have fun and since you're suppose, the object of the game is to shoot the duck, I probably would. So, I'm going to shoot the duck. (Shoots at image)	Umm.. it's a statue of a duck. And it makes me feel like (pause 2 sec) I'm in a park so I'm having fun and *I'm not gonna shoot at it because you're not suppose to shoot at ducks at the park so I don't.*
7-Male	…It's probably part of a computer game that you shoot at or aim at you know, so I'll join in if it, you know is not a real duck, it is a computer game, a digital image so let's go (shoots at image) (written in questionnaire- … seemed like a setup for shooting at.)	Well, this is adult duck sculpture hmm… well, it looks artistic, it looks like somebody went to great pains to make it… It's an inanimate object. Umm… I feel that it's pretty, it's otherwise I don't have much feeling toward it, *it's a pretty duck mounted up and I think it is valuable to someone so I won't shoot at it.*
10-Male	Umm… this reminds me… this duck reminds me of a computer game and yeah I would shoot at this (shoots at image). Same reason it kind of reminds me of target practice this kind of virtual reality where you can use the guns and shoot at your computer screen like in the arcade rooms and try to hit the ducks	Umm… another duck, it looks like a computer graphic, 3-D maybe from an animation umm… (pause 3 sec) I would say emotionless, it looks nice but more…. Uh I could see that as some kind of computer demonstration. Umm… *no I wouldn't shoot at it, it is more just something visual* without really any emotions associated or any feeling.

12-Female	I see a picture that looks like it comes from the Nintendo game Duck Hunt. Umm… and I'm gonna shoot at it (shoots at image) because despite the fact that I don't believe in shooting the gun, it's fun and it's a video game it's not a picture of a real animal, still a picture anyway, but it's not a picture of a real animal and actually now that I say that, that really doesn't sound like much of a good excuse for me, but it was still fun to shoot at it. (written in questionnaire- By the time this picture came up I wanted to play with the gun some more, when I saw an image from a game for shooting I thought it would be a good image to shoot at…)	I see a statue of what looks like a duck in a shallow water and he's kind a pretty and placid looking, so I think I will leave him in peace and not shoot him
14-Male	Ha ha, it's the Duck Hunt duck. And uh, I'd be lying if I said I wouldn't shoot at it cuz I played this game like hours and hours on end so yeah I'd probably (shoots at image) have to shoot the little video game duck.	(Pause 2 sec) No, I like that it's like a little bronze duck statue thing. I probably keep that or uh *I definitely wouldn't shoot at it, it looks nice.*
15-Male	Yeah, I'd shoot that.(Shoots at Image) That is the Duck Hunt thing and I'd shoot that in the same, mainly because I had the game when I was younger and I didn't really like the game that much, but yeah it just seems again like some-thing that is meant to be shot at so, that is why I would shoot at it.	No, I wouldn't that's a duck in water in looks like a plastic, is it… it looks like a plastic duck, umm.. of course it must be a plastic duck. No, I don't think I would shoot at that, *it just doesn't seem like it's put there to be shot at, if it is then I probably would have but it doesn't seem to be that it seems to be more decoration than anything else*

18-Male	Oh, Duck Hunt for Super Mario. I have to, this game brings back nostalgia like umm… definitely nostalgia, I miss those times. Reminds me of fun and I am happy now. I'd definitely shoot it (shoots at image). I probably missed though just as I did when I played the game.	*This seems to be a real duck* I guess. Once again reminds me of the zoo or something. *Kind of nice, peaceful relaxing, I wouldn't shoot it obviously*. That's about it, natureous, I don't think that is a word natureous.
20-Female	The duck, it looks like from Duck Hunt and I would shoot, definitely, umm…that is such a typical target in my mind from being young. And I would shoot to win the game.	A wooden duck and I would not shoot because it looks like a work of art
26-Female	(Laugh). It's Duck Hunt. I was just playing this in my friend's room. So I will definitely shoot it (shoots at image). I've just been trained to do that (laugh). It is how you win.	The bullet would probably bounce off that duck (laugh) so probably not.

Table 4: Comparison of Duck Images as "Targets" [53]

Over half of the subjects interpreted the Duck Hunt image as an image they could definitely shoot at because it is suppose to be shot at. How did they arrive at this conclusion? All of these subjects had previous experience playing the game Duck Hunt and their past experience with this duck was in the context of a shooting video game. The video game Duck Hunt came out in the United States with the first Nintendo game system in 1985. By 1990, over 19 million Nintendo Entertainment Systems (NES) were owned in the United States alone. Duck Hunt was played with a toy gun as the controller. The object of the game was to use the gun and point it toward the TV screen and aim at the ducks as they flew across the screen. Seeing this same duck in an experimental setting that provides the subject with a toy gun immediately reminds the subject of his/her past experience with this duck, which was always in the context of a shooting game. All of the subjects that played the game did so during their childhood. The average age the subjects reported first playing Duck Hunt was 8.4 years old. [54]

The target notion was not as prominent for the subjects from Estonia. Only 4 of the responses (10%) incorporated the target idea:

> Subject 5-Female
>
> It is a computer-game and I think that umm... the meaning of this computer-game is to shoot ducks. Umm... If I am playing this game right now then *I should shoot. So, I'm gonna shoot* (shoots at image). *I think that I missed and I am happy that I missed*.
>
> Subject 11-Female

> Video game, *there you have to shoot, because it is a game, otherwise you wouldn't win. Yeah, you have to shoot*. (Researcher: Do you want to shoot?) No, (Researcher: But you would shoot?) Yeah, of course if I'm playing and I... Usually I don't like this kind of games I like those adventure games and this kind of games.
>
> Subject 18-Male
>
> Digital duck... It's a ...it's something like a children's book... And I think.... *Yeah, you have to shoot at this one* (shoots at image) because it is probably from a computer-game where *you are supposed to shoot as many ducks as possible*.
>
> Subject 34-Female
>
> Hmm... this picture is (shoots at image) *like a computer-game there you have to shoot*. [55]

Even though these subjects used the target notion, they still were not as positive about their decisions compared to the subjects from the U.S. Subject 5 hoped that she missed the duck, even though she thought she should shoot at it. Subject 11, similarly, said that "you have to shoot," but she did not actually use the toy gun to shoot at the screen and in the end said she didn't like these types of games. [56]

The notion of a target was often combined with past experiences and childhood memories for many subjects from the U.S. Some of the subjects' decision to shoot was based purely on past experiences and not with the target notion. For example, Subject 19 stated about image 9,

> Ha ha, I remember that game, Duck Hunt on the Nintendo. That was fun, *my uncle taught me how to play that actually. And uh, for old times sake* (shoots at image). [57]

This subject shot at the image because it brought back memories of the past. Another example that reflects childhood memory is from Subject 29-Female,

> Oh this is the image of the duck from I think it's Nintendo's first game setup where there is alittle dog that goes out, you shoot and the little dog will go and get the birds. *So, because I loved this game as a kid and I remember having competitions with my brothers over this game. I will shoot at the duck* (shoots at image). [58]

This subject decided to shoot the image because it reminded her of fun times during her childhood that involved playing this game. This subject also constructed decisions not to shoot the following 2 duck images based on past experiences. Her responses to both image 10 (the bronze duck) and image 11 (the living ducks) are stated below:

> Image 10: This next image is of a statue of a duck. I don't know it is sitting in water or maybe sand or something. *It actually reminds me of the statues of make way for duckling ducks in Boston Public Garden and I love that story, I love reading it to my cousins, it's a really cool story*, and I get upset every year when the colleges that are in Boston try to do the prank of trying to see who can get the duck captured first so I am choosing not to shoot at them.

> Image 11: This is a picture of a real duck, 2 real ducks swimming in the water, *reminds me of feeding the ducks in the Boston Public Gardens and the swan boats that go around and you give the ducks peanuts*. I am choosing not to shoot because they're animals and I like animals. [59]

This subject used her past experiences in the decision making process for each of the 3 duck related images. Image 9 she decided to shoot and the other 2 she choose not to shoot. This subject illustrates that past experiences can be constructed and used in many different scenarios with different actions depending on how a subject relates the current image to his/her memories. The most common construction of the decision to shoot the Duck Hunt image was to combine both the target idea with past experiences of playing the game. [60]

The use of childhood memories was also absent among the subjects from Estonia, even from the subjects that reported having played the game in the past. However, upon closer inspection these subjects had very little experience with the game, with most subjects only having played the game a few times during their lives. They did not have enough experience to create the clear past memories that the subjects from the U.S. could create based on the hours of experience playing this game. [61]

Of the subjects that had played the game in the past, most (6 out of 8) did not choose to shoot. Two examples demonstrate why these subjects decided not to shoot even though they had played the game in the past:

> Subject 3-Male
>
> Oh, it's a videogame duck. I have shot them. *This one has a look that kind of face that he wants to live today*. He is just like telling that "don't shoot at me, the others are anyway shooting at me, *he looks so sad*, so please you don't shoot." So, I don't want to shoot at him also.
>
> Subject 16-Female
>
> This is duck from TV Play Station. I had Play Station 2 years ago, *but right now I am not playing Play Station so it is not interesting to shoot*. [62]

Subject 16 did not shoot because she was not actually playing the game. Subject 3 did not shoot because he felt bad for this bird and thought the bird looked sad and should not be shot at. While they had shot before, this experimental setting did not create the same video game sense for these subjects. [63]

Not all of the subjects from the U.S. that recognized the image as being from the video game decided to shoot at it. Here is one example from Subject 8-Female:

> Oh (said with emotion) it's from the Mario Brothers. It used to be a game *I used to play when I was little. But I don't think I want to shoot at that because it is just really boring and it was a stupid game*. I think it encourages shooting at things just in general. Something alive, I think it is different from the bottles because the bottles they're there, you know they're just standing there and if I wanted them to be for the

> purpose of being shot at for amusement then that is different than having a video game with a duck. [64]

This subject does have past memories of playing this game, but the memories are negative, "it was a stupid game." This subject did not enjoy playing the game as a child, and so she does not want to shoot at the current image. She constructs a more detailed reasoning about her decision by comparing this image to the image of the bottles. She seemed to need to construct an elaborate reason for not shooting at this image that in the past she had associated with shooting (during her childhood). [65]

The 3 duck images elicited similar responses across subjects. Images 10 and 11 did not evoke thoughts of shooting. Image 10 (bronze duck) was consistently thought of as a statue and something valuable not to be shot at. Image 11, evoked even stronger views against shooting because it was an image of real living ducks, and many subjects stated they would not shoot an animal. The Duck Hunt image did provide some differences across subjects there were 3 main categories that the subjects could be divided into, recognized image from the game and decided to shoot, recognized image from the game and did not shoot, and not recognize the image as from the game and did not shoot. [66]

The results from Estonia were very similar in response to the bronze duck and living ducks. However, the Duck Hunt duck did elicit some different responses. Again, the lack of experience playing the game makes the immediate shooting reaction, shown by many subjects from the U.S., less prominent for many of the subjects from Estonia. [67]

4.4 General video game analysis (subjects from United States Only)

The relationship between the willingness to shoot at the images and the number and hours of video games that each subject reported having played will be explored in this section. The video games that each subject reported having played and the number of hours/week they recall having played that game is reported in Figure 2. The highlighted subjects within Figure 2 will be discussed.

Subjects	Duck Hunt	Mortal Kombat	Doom	Tekken	Resident Evil	Resident Evil 2	Terminator	Area 51	House of the Dead	Total
1	2									2
2										
3	1									1
4	5	5								10
5				7						7
6	10	7	1+	1+			<1	<1		21
7										
8	<1		<1							2
9										
10							<1			1
11										
12	<1									1
13										
14	3.5	3	0.5		11			0.01		18
15	1	1	5	3	1			1		12
16	1									1
17	0.5			3.5	2.5	3		2	1	12.5
18	3	5	4							12
19	2	1	2	2				<1		8
20	3		1							4
21	3	7		7	7					24
22										
23	3									3
24										
25	0.25	1	1				0.01			2.3
26	0.5		1+					1+		2.5
27	0.05	3								3.1
28		2	10	1			1	1	4	19
29	4		0.5							4.5
30	2	1x						1-2x		2
Total	46.8	35	27	24.5	21.5	3	3	11	5	285.6
Average	2.3	3.5	2.5	3.5	5.4	3	0.8	1.6	2.5	2.8

Figure 2: Videogames Played in Hours/Week (U.S. Subjects) [68]

Past research suggests that playing violent games makes a person more aggressive and violent. The following discussion will explore this issue in terms of the current data. Subject 2 shot at all 3 of the Duck images. He was the only subject to shoot at Image 9 or Image 10. Also, referring back to Table 1, Subject 2 had the highest total number of images that he chose to shoot (6 out of 8). However, he also reported that he never played any of the violent video games on the list. Subject 23 also had a low response to playing video games (only 3 total hours/week reported), and above average number of images shot (4 out of 8). This suggests that the number of images a subject shot is not directly related to the number of video games they have played. [69]

What reaction to the images did the subjects with the most experience playing violent video games have? Subjects 6, 14, 21, and 28 had the 4 highest reported hours playing violent video games. Comparing the number of hours to the number of images the subject shot at from the Shooting Chart in Table 1 we find that each of these subjects shot at a different number of images. Subject 6 only shot at 1 image, Subject 14 shot at 3 images, Subject 21 at 5 images and Subject 28 at 4 images. [70]

There is no consistency between playing violent games and a desire to shoot at the images in the experiment. Subjects with little video game experience shot at just as many or as few images as subjects with much violent video game knowledge. What can we conclude from this data? Playing violent video games does not immediately lead a person to act in a violent way. Rather, playing video games can be a background (as in the Duck Hunt case), which can make a person more prepared to shoot when an image sparks a memory or past

experience. In addition to the image being related to a memory of a game, the type of action must also be equivalent to the action that was being done in the video game, i.e. Duck Hunt used a toy gun to shoot at the screen and in the experiment the subjects were given a toy gun and could shoot at the screen. The type of video game becomes important when making decisions about using violence, which will be discussed in detail below. [71]

4.5 Shooting games vs. fighting games

Another aspect of video games that is missing from past research is the importance of the type of video game. Duck Hunt is a shooting game. This means that a toy gun is used as the controller and the entire game is played by shooting a gun at the TV screen. Some prior research has discussed violent games, such as Mortal Kombat, leading to violent shooting acts. Mitchell Johnson, age 13, was one of the shooters in the Jonesboro, Arkansas school tragedy that occurred in 1998. His involvement has been linked to playing the game "Mortal Kombat" (in addition to other factors such as being teased by peers for "being fat" and considered a "bully" by peers) (FOX & LEVIN, 2001). Mortal Kombat is a fighting game that is played with a typical controller where the player pushes different buttons to punch or kick an opponent. There are no guns or shooting involved in this game. [72]

The last 7 subjects in the sample for this experiment were shown two images of characters from the game Mortal Kombat (one of Sonya Blade and the other of Sub-zero). Another video game character was used as an image for all 30 subjects. Image 13 was of Bruce Campbell from the game Evil Dead. This image was somewhat blurry and difficult for some subjects to make out; however, some subjects were able to recognize this image as from a video game. This image shows a man in front of a fence with a chainsaw in one hand and an axe in the other both weapons dripping with blood. This game is an adventure type of game. A few examples from these images will be used to explore the differences between the type of game and the decision to shoot. [73]

Image 13 left many subjects confused and unsure about what they were seeing. Six subjects did think the image was from a video game. Two subjects were able to name the game he was from. Two of the subjects decided to shoot this image. One subject that decided to shoot stated:

> Hmm, well this *looks like a video game to me and it looks like a pretty mean guy that is gonna get me* with a chainsaw or something and a hatchet if I don't shoot him. *So, again in that context of video game and therefore it's not real and it has a strong negative valence attached to it in that video game sense ie this is not a magic fairy in the video game who is coming to help me, but someone who is trying to END my participation in the video game. I would choose to shoot at him* (subject shoots at image). And hope that he was gone so that I could continue my progress in the video game. [Subject 1-Female] [74]

This subject did not know the specific game that this image was portraying, but she did decide to shot because the image seemed negative. Even though she had a low level of video game exposure (only 2 hours/week as shown in Figure 2) she still decided to shoot. An example from a subject who also thought it was an image from a video game stated:

> (Pause 3 sec) It looks like this guy is from a video game, but I'm not sure. It looks like he is a hunter or something, umm... *I would not shoot at him, I don't know why, just because he is uh, human character in a video game*. [Subject 21-Male] [75]

This subject interpreted it as a video game, but not in the negative sense described by the previous subject. The idea that it is a "human character," rather than a duck for instance, also helps this subject decide against shooting. This subject was one of the subjects described above as having played many hours of video games yet he chose not to shoot at this image from a video game. One of the subjects that knew this character and had experience playing these games was very definitive about his decision to shoot or not:

> OH (sounds excited) that's Bruce Campbell from the Night of the Living Dead so uh, I *definitely would not shoot Bruce Campbell because he is the man*. And uh, I actually played that video game before so *No Way not shooting at Bruce*. [Subject 14-Male] [76]

For this subject having played the game made him decide definitely NOT to shoot at the image of the man. He recognized the character in the image and this recognition made him not shoot. In this case having played a violent game in the past actually made the subject decide *against* acting in a violent manner. Another subject who decided against shooting was concerned with the context of the image:

> Umm...*looks like a computer game, it looks like a pretty realistic one* umm... I am slightly confused by the axe and what looks like a chainsaw and the blood on it down there. Umm.. *I really have a hard time putting this one into context*. So I wouldn't shoot at it because I don't really know what is going on here. *I haven't played this game or seen it played so I don't know what the point is or what I'm doing so no shoot*. [Subject 25-Male] [77]

This subject did not recognize the game and therefore decided not to shoot. Unless a subject actually can recall having played the game and acting in the same way they were being asked to in this experiment (i.e. shooting), they are much less likely to want to shoot at an image, even if it reminds them of a video game setting. [78]

One example from the Mortal Kombat images will also be helpful in showing the differences and importance of context and the type of game. Subject 27 did report having played Mortal Kombat in the past. She stated in response to Image 15 (Sonya Blade) and Image 16 (Sub-Zero):

> Image 15
>
> Uhh.. it's a video game person. *I don't know what she's in context so I don't know if she is just an image or something. She is just a woman standing there so I don't really want to shoot at someone that is not really attacking me*.
>
> Image 16
>
> That's that other video game with that guy, *the ninja guy. Uh... it's blue, he looks nice, I don't really want to shoot at him. Maybe he is just like standing there too he's not really doing anything to cause any harm*. [79]

These images are from a fighting game. The fact that they are "standing there" and not doing much is intrinsic to the type of game. The characters do just stand there until you push the button and they kick and punch each other. In this experimental setting with a gun it does not fit to shoot at these characters. Thinking back to the Duck Hunt duck, the image was simply of a duck that was just "flying" there and not causing any harm; yet, the decision to shoot is very different. I suggest that the type of game is vital to the decision to shoot the Duck Hunt duck and the decision not to shoot at the Mortal Kombat figures and the decision making strategies for image 13 (Bruce Campbell). While more data are needed in regards to the Mortal Kombat images, there is evidence that shooting games trigger shooting activities while fighting games do not trigger the same shooting activity. [80]

5. Discussion

How does a person make the decision to shoot or not to shoot? The main strategies that are used are past experiences, and other types of meaning construction often based on the symbolism of the specific images. The results of this research show that people are more willing to shoot at images that are seen as targets. The Duck Hunt image was simply of a duck that was just "flying" there and not causing any harm. Yet, the decision to shoot is complicated by the memories of having played a shooting video game with the same duck image. [81]

5.1 Video games can enable, but do not cause, violent acts

There are many different types of video games. The data presented above examines some of the differences between shooting games and fighting games. A shooting game is played with a toy gun that the person uses to shoot at the TV screen when playing the game. Fighting games are when a controller is used and the person playing the game controls the character and fights with other characters by punching and kicking. [82]

When comparing the duck from Duck Hunt to the characters from Mortal Kombat and the image of Bruce Campbell, I suggest that the type of game becomes vital to the decisions to shoot the Duck Hunt duck and the decision not to shoot at the other video game images. While more data are needed in regards to the Mortal Kombat images, there is evidence that shooting games trigger shooting activities while fighting games do not trigger the same shooting activity. This conclusion

would undermine many of the recent theories of violent video games, such as Mortal Kombat, contributing to the rise of school shootings and violence among adolescents in the United States. The claim that violent video games "cause" violence is not accurate. Video games may enable or play a role in a person acting aggressively, but only under certain conditions. Past experiences with video games alone will not make a person shoot another person. Past experience with a game can enable a person to act violently in a situation that is similar to the one in the video game they have played. [83]

Video games are part of a person's memory and past experiences, and thus can be utilized along with all other events when making decisions. However, video games are not determining factors in a person's willingness to shoot at a particular image. Shooting video games, such as Duck Hunt, can enable a person to shoot (if the image triggers a memory of playing that game- and is more likely to trigger a reaction when a person has much more experience with the game), but do not determine or cause such actions. Even if a person plays many hours of video games, it does not necessarily mean they will act more aggressively. People are not "trained robots" that act by simple externally triggered cues, but meaning-based decision-makers. [84]

The long-term effects of playing violent games, based on the above results, are that playing violent video games *do not* cause a person to act violently. While playing a certain game can *enable* a perspective for a violent reaction, such as seeing the duck from Duck Hunt, playing more violent games in general did not have an affect on the number of images a subject decided to shoot. The actual causation of a violent act is always worked out in the actual situation through a process of microgenetic construction. [85]

In addition to video games, movies were also explored in this research. Watching and enjoying a large number of violent movies was not directly related to the decision to shoot. There does not appear to be a long-term impact of watching violent media on the subjects in this study. The experimental setting developed here does resemble a shooting range, and one concern in the development of this experiment was that the subjects would interpret the setting as a video game setup and just shoot at all the images. This did not happen. None of the subjects shot at all the images or based decisions on the shooting range setting. The subjects examined each image and made their decisions based on their interpretation of the image. While we were concerned that some subjects would simply shoot at all of the images because the setting "was not real," this is not a reasonable conclusion because human beings are logical thinkers and make decisions based on meaning constructions. [86]

People are continuously internalizing and externalizing events and experiences from the world around them. New events are always arising and people must face the future and anticipate events that might occur. The enabling of the possibility for future action is as far as any social suggestion can go. The actual action depends upon the construction of meaning on the spot- much like in the present procedure. [87]

Further research can be done to create a more real-life setting. A gun that is heavier and looks like a real gun and creating a setting where the images would disappear once shot at would make the setting more realistic. Other elements that are not accounted for is a person acting in self-defense and in a war-like situation. [88]

This research begins exploring how a person constructs decisions about using violence. Past experiences and the symbolism surrounding an object were important factors in the decision-making process. Depending on each person's individual personal culture, certain images will be viewed negatively and others positively. Besides negative and positive associations, the context in which the image is viewed can impact the decision; a target is much easier to find reasons to shoot, while a living person creates more difficulty even if that person is viewed as evil. [89]

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Appendix: Full List of Images in Experimental Setting

1. Bulls-Eye Target**
2. Cartoon with Bull's-Eye**
3. Nutcrackers
4. Peacock Gray Shadow or Mortal Kombat Logo*
5. Real Peacock
6. KKK Member**
7. Old Man**
8. Green Bottles**
9. Cartoon Video Game Duck**
10. Bronze Duck**
11. Living Ducks**
12. Picture of a Young Woman or Picture of Window with Gun Shot Hole*
13. Video Game Character
14. Cartoon Soldier**
15. Cartoon with Smiley Face or Image of Sonya Blade from Mortal Kombat*

16. Elephant or Image of Sub-zero from Mortal Kombat*
17. Cat
18. Hitler**
19. Fighter Plane with Missile*

* Subjects 24-30 from the United States saw the second images listed for numbers 4, 12, 15, and 16. Number 19 was only shown to subjects 24-30.

** Only these 10 images were shown to subjects from Estonia.

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