

# Table of Contents

Volume 4 • 1997 - 2003

<b>Robert P. Smith</b> .....	<b>.1341</b>
<b>Douglas Snuffer</b> .....	<b>.1364</b>
<b>Tiffany O. Sparks</b> .....	<b>.1401</b>
<b>Laura Stokes</b> .....	<b>.1417</b>
<b>Sterling Tate</b> .....	<b>.1451</b>



**Technological Inequality**

by

**Robert P. Smith**

**Concord College**

**June 26, 2001**

Rural America in the Age of Technology:  
A Case Study of Internet Use in Appalachia

Introduction

Problem Statement

Rural America in general and McDowell County in West Virginia in particular, is at a disadvantage in terms of modern technology, such as the Internet. Income and Education play a major role in determining access to modern technology. Income in rural America is less than that of the urban areas of America creating income inequality. This in turn creates inequality in the amount of technology that rural Americans can access. For example, in the 1990 U.S Census, the total population of McDowell County was 35,233 people. Of those 35,233 people, thirty-seven percent live below the poverty level. Additionally, out of 9, 757 families within the county only 1,854 families earn above \$35,000 year with the median family income only \$15, 756. McDowell County is representative of impoverished rural America.

Education is another determining factor of access to modern technologies. Educational inequality is connected to income inequality. Over sixty-percent of all workers in the rural areas of America are classified as lower-skilled workers. Therefore, they lack the skills to compete for higher paying jobs (Rural Condition and Trends, 2000). Moreover, in the future the fastest growing job market will be in areas of computer related jobs. Most of these jobs require an associates degree or higher (Postsecondary Education Opportunities, 2000). Educational levels have been found to be lower in rural areas of America. For example, in McDowell County, only 4.6 percent of the populations obtain a bachelor degree or higher and only 42.3 percent graduate high school compared to 80 percent overall in the United States. Because rural Americans

such as the residents of McDowell County face educational inequality, they have a lower the likelihood of gaining access to modern technology. Income and education play a major role in the ability to utilize modern technology.

### Research Objective

The question of this research deals with McDowell County, West Virginia. McDowell County is one of the poorest counties in the United States. This research is looks at technology inequality, particularly Internet use and ownership.

### Hypothesis

Rural America has lower income, lower education, and lower infrastructure unlike than urban areas. Rural Americans are isolated form the advances in technology and therefore are not able to benefit from them. There are two hypotheses that emerge from this research. Hypothesis one: people of lower socio-economic status are less likely to have access to modern technology, such as the Internet. In rural America citizens do not have the same job opportunities as those in urban areas. Take for instance McDowell County, this rural Appalachian area once was one of the most prosperous counties in America during the early 1900's. Coal mining was one of the corner stones for the county development. As the coal mines moved out of the area so did other business. McDowell County went though machination. This lead to a sharp decline in the income and status of the people of McDowell County and in turn to a lack of capital needed to gain access to modern technology. Additionally, The Bureau of Labor Statistics predicts that mining is expected to decline by almost 25 percent in the future (Rural Condition and Trends, 1999).

Hypothesis two: rural Americans are less likely to have access to modern technology such as the Internet. Rural Americans, such as like the people of Appalachian are spread over a larger geographical area. For example, people in rural Appalachian are geographically separated from the outside world because of such factors as mountains, roadways, and the lack of adequate telecommunications service within the area (Phatiochs and Scharguilli, 1970). The mountains provide a physical separation from outside influence as do the roadways within Appalachian. The mountains make it difficult to provide a large numbers of roadways though the area. Moreover, the mountainous terrain spreads the population over a large area of land making it a challenge for the telecommunications industry to provide services and repairs. Additionally, the telephones lines within rural Appalachian are not up-to-date (Rowely, 1999).

#### Summary

Rural America is at a disadvantage in terms of access to modern technology such as Internet access. Many factors play a role in the lack of technology in the area, such as education, job opportunities, income inequality, and low infrastructure. This research looks at technology inequality, particularly Internet use and computer ownership within McDowell county as a function of income, job status, and rural location.

### Literature Review

Rural America has been disconnected from the technological revolution, while the rest of America has been savoring the economic and social advances within the technology world. In rural America, the social arrangement within the distribution system perpetuates social inequality and social disadvantage. In the United States approximately 94 percent of all households have some sort of basic phone service, but only about 25 percent have access to the Internet. These numbers tend to be lower in rural America. Lack of technology such as the computer and the Internet functions to lower job opportunities, which in turn are linked to income inequality, lower education, lower infrastructure, and higher cost of service (Rowley, 1999). Therefore, the technological inequality of the social environment in rural America has serious implications.

Technology has been one of the major driving forces electrifying the U.S. economy. According to the Bureau of Labor Statistics, the largest job area in the coming years will be in the fields of technology and services (Rural Sociology, 1999). Education is now the focus point of the information age in terms of employment. Computer skill and comprehension of the Internet will be imperative for career success in the future. Those who lack the skills will be left behind. A rise in equipment investment, such as computer in the workplace, leads to an increase in the skill premium and to higher relative employment for skilled labor (Greenwood, 1999). In 1997, the United States Census Bureau found that forty-nine percent of workers eighteen and over use a computer on the job. Eighty percent of those workers are in the highest income bracket. Moreover, educational levels were higher in the areas of computer usage (Postsecondary Education Opportunities, 2000).

Communication and technological jobs are far less common in the rural areas of America (Rural Sociology, 2000). The lack of technological education is one of the possible causes for the lack of job opportunities in this region. The Bureau of Labor (BLS) expects the fastest growing employment areas of computer usage will require an associate degree or higher. These new jobs require a high level of training and skill. However, sixty percent of rural America workers are classified in the lower skilled areas (Rural Condition and Trends, 1999). Studies have also showed Internet use at work is found to be higher among those with a bachelor's degree or higher (Postsecondary Education Opportunities, 2000). Nevertheless, an effort is being made by rural communities to increase the level of technological education. For example, in West Virginia, the state board of education is making an effort to increase computer knowledge in the classroom. According to one study, analysis of data shows that fifth graders' test scores from the 1997 state test rose up 11 percent, when a technology programs implemented. (Link, 1999).

#### Technological Inequality and Social Capital

Parental involvement in the development of children is a major force in their learning process. Parental involvement is an example of social capital. Social capital consists of trust, networks of cooperation and reciprocity, and civic engagement and community ties (Marcow, 1999). Parental involvement has been linked to the quality of education youths obtain as well as their well-being in the community. Moreover, lack of parental involvement can lead to possible behavior problem (McNeal, 1999).

There are other forms of capital that can be influential at the personal and community levels. The other forms of social capital are the following: norm, form of



obligation and reciprocity, and resource. Form refers to the many structures of social ties and relations, including the breadth of the network, the depth or intensity of the relationship and the nature of the relation. The Norm of Obligation and Reciprocity is some sense of investment or return on that investment. Resource is the materials that increase status or help to reach social goals (McNeal, 1999).

Within social capital is cultural capital. Cultural capital is the capital within the social network of parents and their ability to work within the network with other parents, teachers, administrative officials and etc. In a Leacaw Annette 1989 study entitled, "The Importance of Cultural Capital," she states that cultural capital is significant in determining a child's performance in school, and is also linked to personal involvement in the community (Morow, 1999). Like social capital, cultural capital has various forms. One of them is institutional cultural capital, which is academic success within the network. The second is cultural capital, which is the use of the language and etiquette within the network (Morow, 1999). All of these forms of capital have a major influence on the education of children and the social arrangement arising from social capital and cultural capital can influence levels of social inequality.

A general definition of social capital is a hierarchical system in which social positions are differentially ranked on the basis of importance and reward (Ward and Stone, 2000). Within any social system there is means of ranking. In this county we rank though income, status, and power. Within the current American social system the means of production is the basis of human life. (Kriesberg, 1979). For example, in fiscal year 1999, the GDP (Gross Domestic Product) of the United States totaled 9,252,600,000,000 (nearly 9.3 trillion dollars) and two third of the GDP was for personal

consumption (Postsecondary Education Opportunities, 2000). Personal consumption has become the measuring stick for our quality of life. This leads to class inequality. Class inequality is the difference in people's material conditions and life opportunities resulting from the market situation (Kriesberg, 1979). Income and geography can account for some of the class inequality within the capitalist system.

Class inequality can lead to other inequality. Status inequality is specific positive or negative social establishment. With class inequality and status inequality come power inequality. Power is the ability to control the actions of others (Kriesberg, 1979). These inequalities are linked to one another to form social inequality, which effects rural America.

#### Other Factors

The Internet service provided in the rural areas of America has been questionable. The Telecommunication Act of 1996 was a measure designed to lower the price of telephone access and make an effort to provide a higher level of service in rural areas. However, about 90 percent of 127 small telephone companies that responded to a nationwide survey said they believed that the rural customer would benefit very little or not at all from the measure (Rowely, 1999). This measure did not enhance the quality of service in rural areas because of the following. In rural areas the lower income and educational levels of the region hamper the adoption of modern technologies.

The demand for Internet use in rural America is less than in urban regions. People in rural America, such as Appalachia, are relatively isolated from outside influences because of the lay of the land, and the mountainous terrain. The culture in rural Appalachian retains itself to the people of the area and the environment. The

mountainous region causes the population to be more dispersed. Furthermore infrastructure within rural America is different than the infrastructure of the urban centers. Traveling is often long and dangerous due to the curving mountain roads. For companies, this makes traveling for repairs time consuming and costly. For example, the Internet service for McDowell County comes from either Beckley W.V., or Bluefield W.V. The drive time to either place from McDowell County is approximately one hour or more. Finally, the telephone wires within these areas are not up dated and most modems run on phone lines that are 25 years old or older (Rowley, 1999). All these factors play a role in the lack of job opportunities and technology inequality.

The computer age has affected society in many positive ways. Providing new jobs, skills, faster means of communication, and growth in the economy. It has also created greater income, social, and technology inequality between urban and rural populations. In essence, the more education, income, and social status one has, the more likely one is to adopt and use new technology such as the computer and Internet.

### The Importance of the Question being asked

The importance of the question of technology inequality is important. Technology has been linked to education and the improvement of the quality of education. Furthermore, technologies such as the computer are an important tool in the modern workplace. Those who do not have the means to obtain these new technologies are often left behind. They do not have the skills and the education to compete in the information age. This research looks at Internet use to see if it has impacted on rural Appalachian, more specifically McDowell County

### Relationship between literature and problem statement

The relationship between the literature and the problem statement is very clear. Rural areas such as McDowell County do not have the same technological opportunities as urban centers of America. The literature review showed research supporting our hypothesis that rural areas are at a disadvantage in terms of technology. It also strengthens the argument that other factors such as education, income, and infrastructure play a role in the inequality of technological access.

### Method

This research deals with the population of McDowell County, West Virginia. McDowell County has a population of 35, 233. This research will obtain a random sample within the population through the use of phone surveys. First, the prefixes from the county will be obtained. The prefix refers to the first three digits of a persons phone number. The prefix is organized based on city size. Then, using a random number sheet a complete survey of the population will be obtained though systematic sampling. This research will obtain randomly 115 people from the population.

The surveys will assess computer ownership and the use of the Internet. Occupation will be assessed to compare rates of ownership and Internet use for blue collar vs. white-collar worker. Finally, education will be assessed to see if those with higher education have rates of computer use (Refer to Appendix A).

### Result

Based on previous research in areas closely related to this topic, it was suspected that those subjects with lower educational levels, lower income, and those not living in urban areas would have relatively low rates of computer ownership and internet. The two hypothesis of this research are; 1) those of lower socio-economic status are less likely to have access to modern technology such as the Internet. 2) Rural Americans in general are less likely to have modern technology such as the computer and internet.

Fifty-one percent of the 115 respondents were male. Twelve years of education was the average of education with six percent of the respondents having sixteen or more years of education. Forty percent of the respondents reported that they were, "not employed" with another thirty-four percent holding blue-collar jobs. With concern to, "not employed" the respondents where classified unemployed if they where either retired, disabled, and unemployed. The average age of the respondents was 46 years of age with an age range of twenty to eighty-six years.

The results of the research were significant for both hypothesized relationship. Using a Chi-Square test of significance it was found that those with higher educational levels and white-collar jobs were significantly more likely to own and use a computer. With those with more education, they utilize the computer and the Internet more.

## Discussion

According to the Bureau of Labor Statistics the fastest area of growth will be in the area of technology. Furthermore, those with an associates degree or higher will be able to obtain these jobs. The BLS predicts further, that jobs will be lost in the blue-collar sector due to the rise of technological job. If this trend continues, rural America will suffer. In rural America, like McDowell County, over 60 percent of the workers are classified as blue-collar workers (Rural Condition and Trends, 2000).

The findings of this research demonstrate that income, education, and location are linked to technology inequality. Technology is not simply a luxury but a key tool for success. Research has shown that those with higher education are more likely to have access to a computer and, the Internet. In areas such as McDowell County where educational attainment is lower than the rest of the United States, so is the use of technology such as the Internet.

Technology has long been a sign of social class, especially here in the United States. In the 1930's through the 40's, the car was the symbol of class. In the 50's every one had to have a T.V. Today, computers are the new capital, and symbol of middle-class America. Capital, is anything that helps one to obtain power and wealth.

As this research has shown, rural America in general and McDowell County in particular is being left behind in terms of education, income, and now technology. This research has demonstrated a significant association between education, and Internet use. Those with higher education are more likely to use the Internet. This research found that those with higher educational levels were more likely to have a computer. Those in the

white-collar sector where more likely to own a computer than those of blue-collar jobs. Finally, those in the white-collar sector were more likely to use the Internet.

This research did have its limitations. Due to financial and time restrictions the sample size was limited to 115. A larger sample size would theoretical provide stronger results. For future research, one might consider doing a longitudinal study of technology in rural America. Another possibility would be to look at rural school systems in terms of technology compared to those in urban areas.

This inequality is facing rural America has a domino effect. With the lack of education, comes the lack of income, and thus results in the lack capital. This is a pressing issue for rural America. Further research could provide potential solutions to the problem of inequality in rural America.

#### Summary

Technology varies among rural and urban areas. The rural areas of America lack opportunities in education, jobs, income and now technology. Technology is a powerful tool in the modern age. It electrifies market growth and job opportunities. E-trade, e-business, and e-mail are a necessity in the current work force. New technological job opportunities create higher paying jobs increasing one's, socio-economic status. Those who do not have the means or the capital to gain access to tools such as the computer and the Internet are not equipped for new opportunities.

## APPENDIX A



## Crosstabs

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
OCCUP * OWN	109	94.8%	6	5.2%	115	100.0%

### OCCUP \* OWN Crosstabulation

Count

		OWN		Total
		YES	NO	
OCCUP	BLUE COLLAR	13	26	39
	WHITE COLLAR	18	5	23
	NOT EMPLOYED	11	35	46
	12.0		1	1
Total		42	67	109

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.550 <sup>a</sup>	3	.000
Likelihood Ratio	20.981	3	.000
Linear-by-Linear Association	1.677	1	.195
N of Valid Cases	109		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is .39.

## Crosstabs

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
OCCUP * USE	109	94.8%	6	5.2%	115	100.0%

### OCCUP \* USE Crosstabulation

Count

		USE		Total
		YES	NO	
OCCUP	BLUE COLLAR	12	27	39
	WHITE COLLAR	18	5	23
	NOT EMPLOYED	8	38	46
	12.0		1	1
Total		38	71	109

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.082 <sup>a</sup>	3	.000
Likelihood Ratio	26.220	3	.000
Linear-by-Linear Association	2.358	1	.125
N of Valid Cases	109		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is .35.

### Crosstabs

#### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
AGE * USE	107	93.0%	8	7.0%	115	100.0%

AGE \* USE Crosstabulation

Count

		USE		Total
		YES	NO	
AGE	20.00	2	1	3
	22.00		1	1
	25.00	1	1	2
	26.00		1	1
	27.00	2	1	3
	28.00	2	2	4
	29.00	3	5	8
	30.00		1	1
	31.00	2	1	3
	32.00		1	1
	33.00	1		1
	34.00	3	3	6
	35.00		1	1
	36.00	1	3	4
	37.00		2	2
	38.00	1	2	3
	39.00	1	1	2
	40.00		2	2
	41.00	2	1	3
	42.00	4	1	5
	43.00	2	2	4
	44.00	1	1	2
	45.00	1	1	2
	46.00	1	2	3
	47.00	2	1	3
	48.00	1	1	2
	49.00	1		1
	50.00	1	2	3
	52.00		1	1
	56.00		1	1
	57.00		1	1
	58.00	1	1	2
	64.00	1	3	4
	66.00		2	2
	67.00		1	1
	68.00		1	1
	69.00	1		1
	71.00	1	1	2
	72.00		3	3
	74.00		3	3
	75.00		2	2
	77.00		2	2
	78.00		2	2
	81.00		1	1
	83.00		1	1
	86.00		1	1
<b>Total</b>		<b>39</b>	<b>68</b>	<b>107</b>

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.732 <sup>a</sup>	45	.837
Likelihood Ratio	46.419	45	.414
Linear-by-Linear Association	8.269	1	.004
N of Valid Cases	107		

a. 91 cells (98.9%) have expected count less than 5. The minimum expected count is .36.

## Crosstabs

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
GENDER * USE	114	99.1%	1	.9%	115	100.0%

### GENDER \* USE Crosstabulation

Count

		USE		Total
		YES	NO	
GENDER	MALE	17	42	59
	FEMALE	24	31	55
Total		41	73	114

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.716 <sup>b</sup>	1	.099		
Continuity Correction <sup>a</sup>	2.110	1	.146		
Likelihood Ratio	2.724	1	.099		
Fisher's Exact Test				.120	.073
Linear-by-Linear Association	2.692	1	.101		
N of Valid Cases	114				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 19.78.

## Crosstabs

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
EDUC * OWN	111	96.5%	4	3.5%	115	100.0%

**EDUC \* OWN Crosstabulation**

Count

		OWN		Total
		YES	NO	
EDUC	6.00	1	1	2
	7.00		2	2
	8.00	1	2	3
	9.00		6	6
	10.00		2	2
	11.00	1	3	4
	12.00	23	45	68
	13.00	2	4	6
	13.50	2		2
	14.00	6	1	7
	15.00	1		1
	16.00	7		7
	36.00	1		1
	<b>Total</b>	<b>45</b>	<b>66</b>	<b>111</b>

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.819 <sup>a</sup>	12	.002
Likelihood Ratio	38.391	12	.000
Linear-by-Linear Association	12.241	1	.000
N of Valid Cases	111		

a. 24 cells (92.3%) have expected count less than 5. The minimum expected count is .41.

**APPENDIX B**

## Data Sheet

Information for the surveyors:

Hello, my name is Robert Smith and I am a student at Concord College. I am conducting research on technology in McDowell County. May I have five minutes of your time to ask you a few short questions on this subject?

### Questions

1. Do you or any member of your household own a computer?
  - A. If No, Why don't you own a computer?
2. Do you or any member of your household use the Internet?
  - A. If yes, how many hours a week do you use the Internet?
  - B. If no, why don't you use the Internet?
3. What is your occupation?
4. How many years of education do you have?
5. What is your total yearly household income?
6. How old are you?
7. How many people live in your home?

Gender: M \_\_\_\_\_ F \_\_\_\_\_

Reference:

Postsecondary Education opportunity: (2000) Information Technology and Higher Education; Vol 93 Oskaloosa, IW. [www.postsecondary.org](http://www.postsecondary.org)

Rowley Tom, (1999) Rural Telecommunication: Why Your Community Isn't Connected and What You Can Do s It: VA Rural Study Program/ Staff Paper

Photiadis John (1970) Change in Rural Appalachian: Vol I, Philadelphia, Pa University of Pennsylvania:

Kriesberg, Louis (1979) Social Inequality Vol I Prentice hall; Englewood Cliffs, N.J  
Future Job Growth Will Benefit Educated workers Most: Rural Condition and Trends. Vol 9, No 3 Nov 3, 1999, Washington D.C.

Greenwood, Jeremy. (1999) Economic Review; The Third Industrial Revaluation: Technology, productivity, and Income Inequality . Cleveland OH.

Morrow, Virginia (1999) Sociological Review; Conceptualizing social capital in relation To the well being of children and young people: Volume 47. Blackwell Publishing, Malden MA.

McNeal, Ralph B. Social Forces



**Abstract**

**Robert Smith**

**Concord College**

**Rural America in the age of technology: A case study of McDowell county**

Rural America in general and McDowell County in West Virginia in particular, is at a disadvantage in terms of modern technology, such as the Internet. Income and Education play a major role in determining access to modern technology. Income in rural America is less than that of the urban areas of America creating income inequality. This in turn creates inequality in the amount of technology that rural Americans can access. There are two hypotheses that emerge from this research. Hypothesis one: people of lower socio-economic status are less likely to have access to modern technology, such as the Internet. The second Hypothesis is rural Americans are less likely to have access to modern technology such as the Internet.

The lack of technology in rural Appalachian is due to several factors such as geographic location, such as the mountains, poor education, lack of a growing job market and finally the lack of population.

Technology is a powerful tool in the modern age. It electrifies market growth and job opportunities. E-trade, e-business, and e-mail are a necessity in the current work force. New technological job opportunities create higher paying jobs increasing one's, socio-economic status. Those who do not have the means or the capital to gain access to tools such as the computer and the Internet are not equipped for new opportunities.

Running head: AGGRESSIVE COGNITION

Effects of Differing Types of Violence in Video Games on Aggressive Cognition

Douglas Snuffer

Concord College

## Abstract

In recent years, many crimes committed by adolescents and young adults have been blamed in part on violent media, such as movies, music and video games. The current experiment examines the role of abstract and realistic violence in video games on aggressive cognition. Subjects were pooled from college level introductory psychology courses. The subjects were asked to play one of three video games with differing levels of violence, and then fill out a short scale to assess their current state of aggressive cognition. Results demonstrated a marginal effect on aggressive cognition between subjects playing a non-violent game and a realistic violent game. No other significant effects were discovered.

### Effects of Abstract and Realistic Violence in Video Games on Aggressive Cognition

For years, the effects of media such as television, music and movies on human behavior and cognition have been pondered. One of the investigated areas is the effect that exposure to violent media has on aggressive human behavior.

The belief that violent media has an effect on human behavior is not a new one. Some scientists made it a topic of concern decades ago when movies first became widely distributed (Huesmann, 1986). More recently, Huesmann (1986) developed a theory to account for the relationship between media violence and aggressive behavior. Huesmann proposes that aggressive scripts for behavior are acquired from observation of media violence, and in both childhood and adulthood, certain cues in the media may trigger the activation of aggressive scripts.

A few years later, Carlson, Marcus-Newhall, and Miller (1990) wrote about the effects of situational aggression cues. Referring to Berkowitz and LePage's "weapons effect" (1967), Carlson et al. (1990) stated that the presence of an environmental cue like a revolver may act automatically to stimulate aggressive thoughts and actions. Carlson and his peers also wrote that, "Situational cues that stimulate images of unpleasantness or violence may prime or further strengthen the effects of such schemata and thereby facilitate the experience of negative emotion and the subsequent expression of aggression" (Carlson et al., 1990, p. 622). Carlson's statement implies that exposure to violent situations, whether in the media or in real life, can create an aggressive state of mind, which leads to aggressive behavior.

In addition to the link that media violence has with increased aggressive behavior, a second harmful effect has been proposed. The viewing of violent acts on television

may lead to a desensitization of emotional response to viewing aggression (Irwin & Gross, 1995). This desensitization could lead to acceptance of aggression as an adaptive coping mechanism. A study by Molitor and Hirsch (1994), replicating earlier studies by Drabman and Thomas (as cited in Molitor & Hirsch, 1994), found that children tend to tolerate the aggressive behaviors of others more if they have first seen violence on television or film.

The idea that violent media has a causal effect on violent behavior is not without opposition, however. Freedman (1984) writes that while a substantial amount of laboratory research has demonstrated that viewing violent material on television or film can increase aggression, the research may tell little about the effect that television has in the outside world. Freedman also gives reasons why the findings of laboratory research may not generalize to situations outside the laboratory. First, the measures of aggression that are used in the laboratory are usually only analogues of aggression, and are behaviors that are rarely executed in real life (Freedman, 1984). Second, laboratory research suffers from strong experimenter demands. As Freedman (1984) states:

Because the film or television program has clearly been chosen by the experimenter, the subjects are likely to assume that the experimenter approves of the film and its content....When the subjects are given a chance to behave aggressively, they are more likely to do so because, in a sense, they have been told to or perhaps given permission by the experimenter. (p. 228)

In addition, a one-way causal relationship between violent media has not been definitely established. While it is possible that television violence can effect aggression,

it is equally possible for an aggressive person to prefer violent television (Eron, 1982; Freedman, 1984). Obviously, questions concerning the direction of the relationship between violent television and aggression can be raised.

A far more worrisome violent media for many researchers however, is that of the violent video game, which, like television, has the potential to be a major socializing agent for children (Loftus & Loftus, 1983). At one time, the biggest question concerning the ethical value of video games was whether video games could improve a person's performance by improving hand/eye coordination and motor skills or if the games created deficits in intellectual ability by occupying too much of a person's time in an unproductive manner. Today however, the biggest question has been whether video games, particularly of a violent nature, are dangerous. This topic of controversy was intensely ignited immediately after the Columbine High School Massacre in 1999. The gunmen, Eric Harris and Dylan Klebold, were supposedly fans of the violent video game, Doom (Gillespie, 2000). Many violent games like Doom have been tied to violent acts, particularly school shootings, by the media.

The argument tying violent video games to violent acts is that the interactive interface between the player and the game makes the coping reactions to arousing events in the game become real coping procedures for the player's daily life (Grodal, 2000). As Dill and Dill (1998) write, "...once children learn that aggressive behavior is appropriate and that it can be rewarding, they are more likely to choose aggressive responses to conflict situations in their own lives" (p. 410).

While violent video games are, like violent television, considered to be a form of violent media, important distinctions between the two forms need to be made. Television

does not require constant attention, and requires no physical involvement, whereas video games, whether violent or not, require constant attention, and active involvement (Dominick, 1984; Irwin & Gross, 1995). These two differences, according to Irwin and Gross (1995), may serve to enhance the impact of video aggression on a child's behavior. The combination of these two characteristics in violent video games can be paraphrased as "Identification with the aggressor" (Dill & Dill, 1998, p. 413). This identification is produced by a video game player choosing a character (perhaps by default), and acting out that character's role.

Also, Kinder (1996) writes that the interactivity of video games provides an active sensori-motor experience that usually demands repetitive moves, pushing the same buttons over and over until success occurs, which may mean that if cognitive learning is accelerated by physical enactment, the earlier people are exposed to violent video games, the more repetitive and habitual violent behavior may become (Kinder, 1996).

In sum, the interactive nature of video games may be a catalyst for learning aggressive behavior. Buchman and Funk (1996) write that if violence is learned, then "the powerful combination of demonstration, reward, and practice inherent in electronic game playing creates an ideal instructional environment" (p. 15). The difference in the level of interactivity appears to be the key distinction between video games and television. Violent video game players find themselves to be active participants in the violent actions that are exhibited on screen, while viewers of television violence take a more passive role, allowing the violence to occur without actually taking part in it.

A key element of the interactive distinction between violent games and violent television is the reward system that is utilized by video games, but not television. The

basic premise of violent video games is, put simply, kill or be killed. As such, the best strategy for success in a violent video game is to commit violent actions (Funk, Flores, Buchman, & Germann, 1999). According to Funk and her peers, the players that stick to this strategy will experience positive reinforcement (Funk, et al, 1999). Since any behavior that is reinforced will increase in frequency (Loftus & Loftus, 1983), it may be of some concern that aggressive actions in video games are being reinforced. Also, it is important to understand how these violent acts are being reinforced.

Dominick (1984) asserts that aggression in video games is portrayed as justified, and success is "rewarded by a high score and a chance for a person to register his or her initials in the machine for others to see and envy" (p. 138). These rewards quite possibly create reinforcement for playing the games, especially since more practice tends to lead to more success. Dill and Dill (1998) take the idea that video game players are reinforced by a high score a bit further. A person playing a violent video game is not only reinforced by a high score, but also by sound effects, access to new levels of the game, etc. This idea may be important, as it implies that sight of violence being committed may be reinforcing by itself. This idea is consistent with today's video game market, as many current violent video games do not incorporate the use of high scores.

Taking a more simplistic approach, Morlock, Yando, and Nigolean (1985) write that two of the incentives that video games offer to players are opportunities to master a complex game, and to compete with others. Certainly, these incentives, which imply that the violence in games is not a motivating factor, but only incidental, cannot be denied. However, Morlock et al. (1985) state that video games offer many incentives to players,



not just the two previously mentioned. Therefore, violent content may indeed be a motivation for some game players.

In support of the notion that violent content is a motivator, Graybill, Strawniak, Hunter, and O'Leary (1987) write that violence occurs in video games only when the player causes it to happen. The violence that occurs on television however, is beyond the control of the person watching it. Therefore, the video game player is in control of the amount of violence that happens while playing the game. Since continued game play contributes to higher amounts of violence in the games, it is logical to suspect that violent content is a reinforcer for violent video game players.

Another possible reinforcer for aggressive actions while playing violent video games is watching the opponent suffer. As Berkowitz (1974) explains, "the angered individual is often gratified at learning that his tormentor has been hurt" (p. 171). This theory however is not without flaw, as it implies that the game player must be provoked by his video game adversary, which is not always the case. In many violent video games, the main character, who is controlled by the player, is given the chance to annihilate his opponent before the opponent has a chance to strike. In fact, this strategy is recommended when playing violent video games, as it lowers the chance of defeat.

Regardless of what reinforces video game playing behavior, the fact that video games are an extremely popular leisure activity cannot be denied. A study by Griffiths (1997) found 55 out of 147 children to be "addicted" (p. 231) to computer game playing. Video games are a multi-billion dollar industry, with violent video games leading the way. Eighty percent of today's most popular games contain violent content in some form

(Vessey & Lee, 2000). Considering the controversy surrounding the possible effects of other violent media on aggression, a look at past research on video games is in order.

A few studies have shown that playing video games may actually be beneficial. A study by Kestenbaum and Weinstein (1985) found that video games had a calming effect on the 208 subjects that they surveyed, who were aged 11-14 years. Like many other studies however, the self-report nature of the data collection may have created meaningless results.

One theory supporting the playing of violent video games is the catharsis theory. The catharsis theory states that experiencing a particular emotional drive will reduce the likelihood of behavior related to the emotional drive (Silvern & Williamson, 1987). Applying this theory to video games, a person playing a violent video game would be less likely to display aggression, as the video game would act as an aggression outlet. Thus, playing the games may be an adaptive way to deal with aggressive energy (Emes, 1997).

Consistent with this theory are the findings of Graybill, Kirsch, and Esselman (1985), who noted that children playing a violent video game showed fewer defensive fantasies and tended to show more assertive or need-persistent fantasies than children who played a non-violent video game. Graybill et al. (1985) interpreted these findings as illustrating that aggression in video games discharges children's impulses in a socially acceptable way, leaving the children less defensive and more assertive.

Winkel, Novak, and Hopson (1987) examined the effects that violent video game play, as opposed to non-violent video game play and no game play, could have on heart rate, and aggressive behavior. No significant effects were found, although the

experimenters proposed that the aggression cues in the games used were not strong enough to produce an effect.

Far more studies however, have produced results that imply that playing video games, especially violent video games, have negative consequences. A correlational study conducted by Dominick (1984) indicated that among a sample of tenth and eleventh grade boys, television viewing, arcade video game playing, and socioeconomic status were inversely correlated with self-esteem. However, the relationship between videogame playing and self-esteem disappeared when television viewing and socioeconomic status were simultaneously partialled out. This relationship was not discovered in the tenth and eleventh grade girls who participated in the study.

Dominick's study also found positive correlations between arcade videogame playing and aggressive delinquency. Aggressive delinquency in this study was measured with a self-report quantitative survey, asking students how often they engaged in three violent behaviors: fighting with several people on a side, hurting someone out of revenge, and fighting with another student. The results of the study however, may have been questionable due to the self-report nature of the data collection.

In a survey study by Anderson and Dill (2000), time spent playing video games was found to be positively related with delinquent behaviors. Anderson and Dill used a Delinquency Scale created for the National Youth Survey to measure delinquent behaviors. The correlations, while reportedly significant, were considerably low ( $r_s = .20$  and  $.15$  for aggressive delinquent behavior and non-aggressive delinquent behavior, respectively). As in the Dominick study, the self-report nature of the data collection may have created questionable results.

Another study using survey techniques found amount of time playing video games to be positively correlated with self-reported aggression (Fling et al, 1992). That is, the subjects who played video games the most believed that they were aggressive people. The sample used however, was rather unrepresentative. The subjects consisted of 153 sixth through twelfth graders, with the high school students in the sample attending a private school for disturbed young people. The past delinquency of the high school students may have influenced the results of the survey.

In a study conducted in the Netherlands, van Schie and Wiegman (1997) investigated the relationship between the amount of time children spent playing video games with several other characteristics and behaviors, such as aggressive behavior, prosocial behavior, social integration, school performance, and intelligence. The study was conducted with a sample of 175 girls and 171 boys in the seventh and eighth grades from seven elementary schools in the Netherlands. The resulting correlations were found to be insignificant with the exception of the correlation between time spent playing video games and prosocial behavior ( $r = -.12, p < .05, n = 277$ ). It should be noted that some of the students surveyed were not included in the analysis of this correlation, as four groups of the children contained less than 20 children. In addition, as Mark Griffiths (2000) points out, van Schie and Wiegman's study was flawed, in that the study looked at correlations involving primarily non-violent games. Only 40 percent of the favorite games mentioned by the adolescents in van Schie and Wiegman's study were described as aggressive (Griffiths, 2000).

A study conducted by Graybill et al. (1987) used three measures of aggression to determine a difference between the effects of three violent games and three non-violent

games. The three measures of aggression were a projective measure, an objective personality measure, and a behavioral measure. The projective measure used was the Rosenzweig Picture Frustration Study, which had been shown in earlier studies to be sensitive to the short-term effects of televised violence. The objective measure was a modified version of the Response Hierarchy Measure (Leifer & Roberts, 1972). The validity of the modified version that was used was unknown. The behavioral measure implemented involved two buttons on an apparatus in which the subjects were seated. One button, which was green, was identified as the "Help" button. It was appropriately named, as pressing the green button allegedly made it easier for a subject in an adjacent room turn a handle. Beside the green button was a red button, labeled "Hurt". Pressing this button would supposedly make the handle in the adjacent room hot to the touch, therefore hurting the subject in the adjacent room. Occurrences of pressing each button were counted, and the duration of each button press was measured in seconds. Theoretically, the more aggressive the subject, the more times the subject would press the "Hurt" button, and presumably for longer duration. With all three measures, no significant difference was found between the violent and non-violent games.

Anderson and Ford (1987) found that subjects playing a mildly or highly aggressive video game had higher levels of hostility compared to subjects playing no game. Also, it was found that a highly aggressive game led to higher levels of anxiety compared to mildly aggressive games. A major problem with Anderson and Ford's experiment was that no comparison was made between aggressive games and non-aggressive games. It is possible, one could argue, that playing any type of video game could lead to increased levels of hostility.

In opposition to Winkel et al (1987), Ballard and Weist (1996) found that violent videogame play had an effect on heart rate. Subjects playing two different violent games had a higher post-play heart rate than subjects playing a non-violent game. Also, Ballard and Weist found that the subjects who played the violent games scored higher than subjects who played the non-violent game on all three of the hostility measures used, which were the Adjective Checklist, the Bell Adjustment Inventory, and the Buss-Durkee Hostility Inventory.

A study by Irwin and Gross (1995) found that aggressive video games had a significant effect on several variables. These dependent variables included physical aggression toward objects during free play,  $F(1,56) = 9.63, p = .003$ ; verbal aggression toward objects during free play,  $F(1,56) = 6.23, p = .016$ , verbal aggression toward confederates during free play,  $F(1,56) = 4.94, p = .03$ , and physical aggression toward confederates during a frustration condition,  $F(1,56) = 4.96, p = .03$ . Physical aggression included hitting, shoving, pinching pulling at clothes, kicking, pulling hair, and throwing or smashing objects. Verbal aggression included any threat or stated intent to carry out a physically aggressive act, or the verbal description of a physically aggressive act being carried out. An obvious problem with this study may have been the lack of a precise behavioral definition for aggression (i.e., What does hitting entail?). This problem however, was controlled for by video taping the subjects' behavior, and having the video tapes rated by two independent observers who were blind to the experimental conditions. Inter-rater reliability correlations ranged from .69 to .99 with a mean of .95 (Irwin & Gross, 1995).

An experiment by Silvern and Williamson (1987) found that both a violent cartoon and a violent video game raised levels of aggression in young children relative to a baseline condition,  $F(2,56) = 3.28, p < .05$ . Aggression was categorized either as physical aggression, verbal aggression, or object aggression. Physical aggression was defined as "physical attack, obstruction, teasing, threatening gestures" (Silvern & Williamson, 1987, p. 456). Verbal aggression was defined as "angry commands, verbal teasing, derogation" (p. 456). Object aggression was defined as a "physical attack on an object" (p. 456). As in the 1995 experiment by Irwin and Gross, the subjects' were videotaped, and coded by two independent raters. Inter-rater reliability was at least .80 for each observation category and for total observations. No significant difference was found in aggression between subjects viewing a violent cartoon and subjects playing a violent video game. Silvern and Williamson later note that the violence in the video game selected for their study was abstract. That is, the violent actions portrayed in the video game were not actions that could be reproduced by humans. Unfortunately, Silvern and Williamson make no distinction in their article concerning which type of aggression (i.e., physical, verbal, or object) the subjects typically committed after playing the violent video game, or after viewing the violent cartoon. It may be possible that different types of violence can evoke different types of aggression.

Ballard and Lineberger (1999) found that violent video games had an effect on reward and punishment behavior. Participants were 119 male college students (M age = 21 years) who were asked to play either a non-violent video game, or one of three levels of a violent video game with a confederate. The participants were then assigned a "teacher" role, administering a 20-item memory test to the confederate. For each correct

answer, the participant was to reward the confederate with jellybeans, the amount of which was selected at the participant's discretion. For each incorrect answer, participants punished the confederate by placing the confederate's hand in a cold pressor device. The amount of time that the confederate's hand was in the cold pressor device was also decided by the participant. Rewarding was measured by the number of jellybeans given to the confederate by the participant. Punishment was measured by the length of time that the confederate's hand was placed in the cold pressor device. It was found that male confederates were rewarded significantly more after playing the non violent game than after playing either of the violent games. There was no significant effect found for the female confederates. A significant effect was also found for punishment behavior between the non-violent and the violent games, with the duration of punishment increasing in a linear fashion as the level of game violence increased.

A study by Chambers and Ascione (1987) found that aggression in video games led to a decrease in prosocial behavior. In their experiment, Chambers and Ascione asked 160 children aged 8-15 years to play either an aggressive video game, a prosocial video game, or no video game. Subsequent donating behavior was then measured. Donating behavior was measured by giving each child a dollar in nickels and counting the number of nickels that the child placed in a donation box labeled, "For Logan's poor children" (p. 501). Children playing the aggressive game were found to have made significantly lower mean donations ( $p < .05$ ) than children playing the prosocial game. No other significant differences between the groups were found.

Overall, the majority of studies on the topic of violent video games and their effects on aggression have been inconclusive or contradictory. Considering the



theoretical possibility that violence in video games can lead to real life violence, further research is of the utmost importance.

Zillmann (1988) writes that, "It has become a truism to say that cognition and excitation interact in the creation of emotional experience and emotional behavior – anger and angry aggression included" (p. 51). It is because of this that the present study was proposed. The present study investigated the effects of video games of differing types of violence on aggressive cognition. The differing types of violence was the independent variable. The types of violence in the video games were abstract violence (i.e., violent acts that cannot be reproduced by humans), such as the violence found in space shoot-em-up games, and realistic violence, which can be reproduced more easily by humans, such as the violence found in fighting games, and first person shooters. The effects of both the abstract violent game and the realistic violent game were compared to each other and to a video game containing no violent content. The dependent variable, aggressive cognition, was measured by subjects' responses to a fill in the blank test. Aggressive cognition is defined as the process of acquiring an aggressive idea. A person with high levels of aggressive cognition then would be more likely to have aggressive ideas. The rationale behind the study is that differing levels of violence in video games will influence levels of aggressive cognition, with more violent games priming more aggressive ideas. It was assumed, for the purposes of this experiment, that a state of higher aggressive cognition would result in a greater number of aggressive words written in the blanks of the test.

The present study proposed a number of hypotheses. First, it was hypothesized that subjects in the realistic violent game condition would have a significantly higher

state of aggressive cognition than subjects in the non-violent game condition and the abstract violent game condition. Second, it was hypothesized that aggressive cognition between subjects in the non-violent game condition and the abstract violent game condition would not be significantly different. Finally, it was hypothesized that the effects of the realistic violent game on aggressive cognition would be greater for males than for females.

### Method

#### Participants

The participants were 73 (35 males, 38 females) undergraduate students at a small, public, four-year college in West Virginia. Subjects used were students enrolled in an introductory psychology course at the college. Extra credit in the course was offered as incentive for participation in the experiment. The ages of the participants ranged from 18 - 46 years ( $M = 20.0274$  years). Participants who failed to complete the test measuring the dependent variable were not included, but were nonetheless given extra credit for their efforts.

Participants were selected by a volunteer process. The experimenter attended sections of introductory psychology courses at the convenience of the professor and explained the nature of the experiment to the students. Students who volunteered were given permission slips before participating. The permission slips explained the nature of the experiment, informed students that they would be given extra credit for participating, and asked the student for their most convenient times for testing. A copy of the permission slip is found in Appendix A. Each subjects' participation time was assessed after analyzing the most convenient times given by the students on the permission slips.

Students were informed of their designated participation time prior to the beginning of testing.

### Materials

Materials for the experiment included a 19-inch color television, a Sega Dreamcast game console, one standard gray Sega Dreamcast controller, and three Sega Dreamcast games. Each of these three games were categorized as one of the following: non-violent, abstract violent, and realistic violent. For the purpose of this experiment, a non-violent game is defined as having no ESRB (Entertainment Software Rating Board) content descriptors. An abstract violent game is defined as having the content descriptor of “animated violence” and having no human character activity during game play. A realistic violent game is defined as having the content descriptor of “animated violence”, and having human character activity during game play. The content descriptor, “animated violence” is defined: “Contains depictions of aggressive conflict involving cartoon/animated/pixelated characters” (Entertainment Software Rating Board, 1998).

The non-violent game used was The Next Tetris: On-Line Edition, which is a puzzle game. The game involves manipulating falling geometric shapes in order to form horizontal lines. The abstract violent game was Mars Matrix, which involves maneuvering a spaceship and shooting at enemy spacecraft. The realistic violent game used was Virtua Fighter 3tb, which involves two human characters fighting each other.

The experiment took place in a sealed off cubicle adjacent to the general psychology classroom. The cubicle was implemented to insure complete privacy and freedom from distractions. A television stand was used in the cubicle to place the television and Sega Dreamcast game console. A chair was placed in front of the

television for the participant to sit while playing the games. A stopwatch was used to note the passage of time. A questionnaire, which is found in Appendix B, was administered to the subjects. The purpose of the questionnaire was to assess the subjects' video game history and experience.

The dependent variable was measured using an ambiguous word fill-in test. This test, hereafter named the Aggressive Cognition Test, is comprised of 12 incomplete words, or words with letters removed. Six of these words have potential to describe violent actions, or objects related to violent actions. Participants filled the blanks in these words with any letters that they chose. The dependent variable is the number of violent words that the participants make from the list of ambiguous, incomplete words. A copy of this test is found in Appendix C. A copy of the test key is found in Appendix D. Ink pens were provided to the participants to fill out the questionnaire and test.

### Procedure

After participants were selected, they were randomly placed into three groups. Each of the three groups played one game. Each participant was in one group. Participants were tested individually.

Once each participant arrived at the testing area, he or she was seated in the designated chair. The participant was then given the questionnaire assessing video game playing history and experience. After completing and returning the questionnaire, the participant was then told what game he or she would play, and was given a sheet describing the basic instructions for playing the game. Copies of the instruction sheets for the three games are shown in Appendix E. After the participant had acknowledged that he or she was ready, the experimenter turned on the television, inserted the game to

be used, turned on the video game console, and handed the participant the video game controller. After the participant advanced through opening screens and menus, thereby beginning play, the experimenter started the stopwatch. After 15 minutes of playing, the participant was asked to stop. The participant was immediately thereafter given the Aggressive Cognition Test. The participant was told that there were no right or wrong answers, and to fill in the blanks with letters to make whatever words that he or she wished.

After each participant completed the test and returned it to the experimenter, the questionnaire and test of the participant were stapled together and placed in the folder. The participant was then asked to print their name on the notepad provided so that extra credit could be properly administered. The participant was then thanked, asked to refrain from giving the details of the experiment to other students, and was dismissed. After the subjects dismissal, the experimenter left the cubicle and closed the door. This procedure followed for all participants.

### Results

The mean dependent measures of the three groups showed a trend, with higher levels of violence in video games leading to higher amounts of the dependent variable. Mean number of aggressive words made on the Aggressive Cognition Test by participants in the non-violent game condition (group one) was 0.6538 (SD = 0.6895). Mean number of aggressive words made by participants in the abstract violent game condition (group two) was 1.00 (SD = 1.3188). Mean number of aggressive words made by participants in the realistic violent game condition (group three) was 1.1739 (SD = 1.025). An alpha level of .05 was used for all statistical tests. A one-way ANOVA was

used to compare the three groups and no significant difference was found,  $F(2, 70) = 1.573, p = 0.215$ . Planned pair-wise contrast tests were also conducted. Between groups one and two, no significant difference was found,  $t(70) = 1.165, p = 0.248$ . Between groups one and three, a marginal effect was found,  $t(70) = 1.730, p = 0.088$ . Between groups two and three, no significant effect was found,  $t(70) = 0.568, p = 0.572$ . Results of the ANOVA and contrasts tests are shown below in Figure 1.

**Figure 1.** Analysis of Variance and Contrast Tests for Aggressive Cognition Scores

**ANOVA**

VAR00002

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.469	2	1.734	1.573	.215
Within Groups	77.189	70	1.103		
Total	80.658	72			

**Contrast Tests**

	Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)	
VAR00002	Assume equal variances	1	.3462	.2972	1.165	70	.248
		2	.5201	.3006	1.730	70	.088
		3	.1739	.3064	.568	70	.572
	Does not assume equal variances	1	.3462	.3012	1.149	34.075	.259
		2	.5201	.2613	1.990	36.710	.054
		3	.1739	.3500	.497	43.861	.622

Difference of means between group one and group three was calculated for males and females to determine which gender was affected more by the realistic violent game. Difference was calculated by subtracting the mean dependent measures of group one from group three for both males and females. Difference between the means of groups one and three for males was 0.406 words. The difference between the means of groups

one and three for females was 0.583 words. This finding suggests that the realistic violent game had a greater effect on females than on males.

#### Discussion

The results of the experiment indicated that playing a more violent video game had an effect on the aggressive cognition of a person, though this effect was not significant. The hypothesis that subjects in the realistic violent game condition would have a significantly higher state of aggressive cognition than subjects in the non-violent game condition and the abstract violent game condition was not supported. The hypothesis that aggressive cognition between subjects in the non-violent game condition and the abstract violent game condition would not be significantly different was supported. The hypothesis that the effects of the realistic violent game on aggressive cognition would be greater for males than for females was not supported.

The most surprising discovery concerning the results was the apparently stronger effect that the realistic violent game had on females as opposed to males. The best, although stereotypical explanation for this effect is that males are more accustomed to playing violent video games, and viewing other forms of violent media. Due to this possibility, males may be desensitized to exposure to violence, thereby not altering their thought patterns as much as females.

Contributing factors to the ANOVA results may have included game selection. All three of the video games selected by the experimenter for use in the experiment are relatively low in violent content compared to many popular video games on the market. In a similar study by Anderson and Dill (2000), the game *Wolfenstein 3D* was used during the violent game condition. *Wolfenstein 3D*, which peaked in popularity in the

early to mid 1990's is a first person shooter which involves maneuvering through a Nazi stronghold, killing guards along the way with knives and an assortment of firearms. The sight of blood is commonplace while playing the game. The results for Anderson and Dill showed higher Aggression Accessibility, or aggressive thought scores for the violent game condition as opposed to the non-violent game condition,  $F(1,98) = 31.35, p < .0001$ . The realistic violent game used in the present study involves knockouts, as opposed to death, used no weapons, and showed no blood. It is quite likely that the violent games selected for the present study were not violent enough to generate a significant effect, as was found in the study by Anderson and Dill.

Another factor influencing the results may have been a phenomenon best described as a Game Over effect. Most participants in group one, who played the non-violent game had to restart due to their game ending about three or four times in a session. This amount was the same for group three participants, who played the realistic violent game. In group two however, participants playing the abstract violent game had to restart due to their game ending twice as many times as the other two groups. This phenomenon may have led to increased frustration and aggressive cognition in group two. An abstract violent game that participants found less difficult may have led to dependent variable scores more like those of group one, which in turn, may have created a significant difference between group three and the other groups.

It is also possible that participants in group three felt pressured to make socially acceptable answers despite their initial thoughts. Obviously, the other groups may have felt the same pressure, but the researcher assumes that the video games played by groups one and two were not violent enough to generate violent answers.



Finally, and perhaps most importantly, the validity of the Aggressive Cognition Test is questionable. The test was created by the researcher for the specific purpose of use in the current experiment. Validity of the test was not established. Also, it is plausible that the test was not sufficiently sensitive. Since the test had only six potential aggressive words, and thereby only seven possible distinct scores, high variability between subjects was not possible. Expanding the test to allow for higher amounts of aggressive words could prove beneficial. Further research should involve the use of a more thorough, validated test.

Conversely, there are factors operating that may have influenced and promoted the trend found in the group means. That is, it is possible that the three groups are even more similar than the results show, but confounding factors made the more violent games lead to higher amounts of aggressive thinking.

One of the confounding factors may have been complexity of controls. Controls for the non-violent game were very basic, requiring use of very few buttons on the controller. Controls for the abstract violent game were a bit more complex, and controls for the realistic violent game were most complex, requiring the use of several buttons on the controller for successful game play. More complex controls found in groups two and three may have led to increased frustration and may have thereby produced some of the discrepancy between means compared to group one.

Another factor that may have promoted the group means trend may have been history effects. Many people have played some version of the non-violent game, Tetris. The abstract violent game and the realistic violent game however, are not as widely played or as popular. Consequently, participants playing the non-violent game may have

been more at ease while participating, whereas participants in groups two and three may have been more frustrated, playing a game that they were not familiar. This lack of familiarity may have led to higher levels of aggressive thinking for groups two and three.

Lastly, and relating to work by Freedman (1984), subjects in groups two and three may have perceived indirect permission to use violent words, since they perceived the experimenter's approval of the violent game which was used.

Additional future research should include a replication of the present study with sounds of the game muted. Each game used in the present study had a unique set of sound effects, including background music. An experiment isolating the visual aspects of video games could demonstrate the influence on aggression, if any, that video game sounds have.

Other ideas for research should include a replication with different games. Games with more violent content may create a more pronounced effect in aggressive cognition. As mentioned before, most of the popular games on the market today are much more violent than the games used in this experiment.

Another replication should be done using a younger population as a subject pool. Griffiths (1999) wrote that younger children are more affected by the violence in video games. This greater effect on younger people is probably due to the lower sense of reality in children, but should be investigated.

Another study could involve participants playing the games on more than one occasion. For example, subjects would be tested for five days, playing the same game 15 minutes each day. Subjects would be given the Aggressive Cognition Test after the fifth session. Repeated exposures to the violent content, which is usually what occurs outside

of the laboratory, could influence scores enough to create statistical significance.

Unfortunately, a study of this nature may be difficult to manage. Experiences of the subjects outside of the laboratory should be controlled during the week of testing. To conduct a project like this with an adequate sample size would be a massive undertaking.

The big question, as it relates to the current study, is whether aggressive cognition leads to aggressive behavior. Merely thinking the word "kill" does no harm, while the action of killing is the pinnacle of harm. Obviously, many factors are related to violence. Further research needs to be done to discover those factors, as well as the role violent media plays on our thoughts, feelings, and ultimately, our behaviors.

## References

- Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology, 78*, 772-790.
- Anderson, C. A., & Ford, C. M. (1987). Affect of the game player: Short-term effects of highly and mildly aggressive video games. *Personality and Social Psychology Bulletin, 12*, 390-402.
- Ballard, M. E., & Lineberger, R. (1999). Video game violence and confederate gender: Effects on reward and punishment given by college males. *Sex Roles, 41*, 541-558.
- Ballard, M. E., & Weist, J. R. (1996). Mortal Kombat™: The effects of violent videogame play on males' hostility and cardiovascular responding. *Journal of Applied Social Psychology, 26*, 717-730.
- Berkowitz, L. (1974). Some determinants of impulsive aggression: Role of mediated associations with reinforcements for aggression. *Psychological Review, 81*, 165-176.
- Berkowitz, L., & LePage, A. (1967). Weapons as aggression-eliciting stimuli. *Journal of Personality and Social Psychology, 7*, 202-207.
- Buchman, D. D., & Funk, J. B. (1996). Video and computer games in the 90s: Children's time commitment & game preference. *Children Today, 24*, 12-15, 31.
- Carlson, M., Marcus-Newhall, A., & Miller, N. (1990). Effects of situational cues: A quantitative review. *Journal of Personality and Social Psychology, 58*, 622-633.

- Chambers, J. H., & Ascione, F. R. (1987). The effects of prosocial and aggressive videogames on children's donating and helping. *Journal of Genetic Psychology, 148*, 499-505.
- Dill, K. E., & Dill, J. C. (1998). Video game violence: A review of the empirical literature. *Aggression and Violent Behavior, 3*, 407-428.
- Dominick, J. R. (1984). Videogames, television violence, and aggression in teenagers. *Journal of Communication, 34*, 136-147.
- Emes, C. E. (1997). Is Mr. Pac Man eating our children? A review of the effect of video games on children. *Canadian Journal of Psychiatry, 42*, 409-414.
- Eron, L. D. (1982). Parent-child interaction, television violence, and aggression of children. *American Psychologist, 37*, 197-211.
- Entertainment Software Rating Board. (1998). *The ESRB's Guide to Interactive Entertainment* [Brochure]. New York, NY: ESRB/IDSA
- Fling, S., Smith, L., Rodriguez, T., Thornton, D., Adtkins, E., & Nixon, K. (1992). Videogames, aggression, and self-esteem: A survey. *Social Behavior and Personality, 20*, 39-46.
- Freedman, J. L. (1984). Effect of television violence on aggressiveness. *Psychological Bulletin, 96*, 227-246.
- Funk, J. B., Flores, G., Buchman, D. D., & Germann, J. N. (1999). Rating electronic games: Violence is in the eye of the beholder. *Youth & Society, 30*, 283-312.
- Gillespie, T. (2000). Violence, games, & art (Part 1). *Technos: Quarterly for Education and Technology, 9*, 17.

- Graybill, D., Kirsch, J., & Esselman, E. D. (1985). Effects of playing violent versus nonviolent video games on the aggressive ideation of aggressive and nonaggressive children. *Child Study Journal, 15*, 199-205.
- Graybill, D., Strawniak, M., Hunter, T., & O'Leary, M. (1987). Effects of playing versus observing violent versus nonviolent video games on children's aggression. *Psychology, A Quarterly Journal of Human Behavior, 24*, 1-8.
- Griffiths, M. (1997). Computer game playing in early adolescence. *Youth & Society, 29*, 223-237.
- Griffiths, M. (1999). Violent video games and aggression: A review of the literature. *Aggression & Violent Behavior, 4*, 203-212.
- Griffiths, M. D. (2000). Video game violence and aggression: Comments on 'Video game playing and its relations with aggressive and prosocial behaviour' by O. Wiegman and E. G. M. van Schie. *British Journal of Social Psychology, 39*, 147-149.
- Grodal, T. (2000). Video games and the pleasures of control. In D. Zillmann and P. Vorderer (Eds.), *Media Entertainment: The Psychology of its Appeal*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Huesmann, L. R. (1986). Psychological processes promoting the relation between exposure to media violence and aggressive behavior by the viewer. *Journal of Social Issues, 42*, 125-139.
- Irwin, A. R., & Gross, A. M. (1995). Cognitive tempo, violent video games, and aggressive behavior in young boys. *Journal of Family Violence, 10*, 337-350.

- Kestenbaum, G. I., & Weinstein, L. (1985). Personality, psychopathology, and developmental issues in male adolescent video game use. *Journal of the American Academy of Child Psychiatry, 24*, 329-337.
- Kinder, M. (1996). Contextualizing video game violence: From Teenage Mutant Ninja Turtles 1 to Mortal Kombat 2. In P. M. Greenfield and R. R. Cocking (Eds.), *Interacting With Video*. Norwood, NJ: Ablex Publishing Corp.
- Leifer, A. D., & Roberts, D. F. (1972). Childrens' responses to television violence. In J. P. Murray, E. A. Rubenstein, & G. A. Comstock (Eds.), *Television and Social Behavior*. Rockville, MD: National Institute of Mental Health.
- Loftus, G. R., & Loftus, E. F. (1983). *Mind at Play: The Psychology of Video Games*. New York: Basic Books Inc.
- Molitor, F., & Hirsch, K. W. (1994). Children's toleration of real-life aggression after exposure to media violence: A replication of the Drabman and Thomas studies. *Child Study Journal, 24*, 191-207.
- Morlock, H., Yando, T., and Nigolean, K. (1985). Motivation of video game players. *Psychological Reports, 57*, 247-250.
- Silvern, S. B., & Williamson, P. A. (1987). The effects of video game play on young children's aggression, fantasy, and prosocial behavior. *Journal of Applied Developmental Psychology, 8*, 453-462.
- Van Schie, E. G. M., & Wiegman, O. (1997). Children and videogames: Leisure activities, aggression, social integration and school performance. *Journal of Applied Social Psychology, 27*, 1175-1194.

Vessey, J. A., & Lee, J. E. (2000). Violent video games affecting our children. *Pediatric Nursing, 26*, 607-609, 632.

Winkel, M., Novak, D. M., & Hopson, H. (1987). Personality factors, subject gender, and the effects of aggressive videogames on aggression in adolescents. *Journal of Research in Personality, 21*, 211-223.

Zillmann, D. (1988). Cognition-excitation interdependencies in aggressive behavior. *Aggressive Behavior, 14*, 51-64.



Appendix A

Date

Students:

I am conducting research on the effects of playing video games. I need test subjects for my experiment.

Over the course of the semester, I will be testing students who volunteer to participate. Each participating student will be asked to play a video game for fifteen (15) minutes and then complete a form. Participation in the experiment is completely voluntary and will be rewarded with extra credit in Psychology 101. Students' names will not be used in the summary and/or the reporting of the research.

Thank you,

Name, Student Researcher, Institution

Name, Professor/Research Mentor, Institution

I volunteer to participate in the above described study. I do declare that I am an adult over the age of 18 years.

\_\_\_\_\_  
Student's name (print)

\_\_\_\_\_  
Signature of student

\_\_\_\_\_  
Date

PLEASE CHECK WHICH TIMES YOU CAN PARTICIPATE!!!

	<u>Monday</u>	<u>Wednesday</u>	<u>Friday</u>
9 - 10	___	___	___
10 - 11	___	___	___
11 - 12	___	___	___
12 - 1	___	___	___
1 - 2	___	___	___
2 - 3	___	___	___

Appendix B

Do you play video games?  Yes  No

Do you have a home video game system?  Yes  No

What video game system(s) do you have? (check all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> PC/Mac         | <input type="checkbox"/> Sega Genesis   |
| <input type="checkbox"/> Nintendo       | <input type="checkbox"/> Sega Saturn    |
| <input type="checkbox"/> Super Nintendo | <input type="checkbox"/> Sega Dreamcast |
| <input type="checkbox"/> Nintendo 64    | <input type="checkbox"/> Game Gear      |
| <input type="checkbox"/> Game Boy       | <input type="checkbox"/> 3DO            |
| <input type="checkbox"/> Playstation    | <input type="checkbox"/> Atari Jaguar   |
| <input type="checkbox"/> Playstation 2  |   |

How many hours per week do you play video games? \_\_\_\_\_

What is your favorite type of game? (choose only one)

- |   |   |
|---|---|
| <input type="checkbox"/> Sports           | <input type="checkbox"/> Role playing games   |
| <input type="checkbox"/> Puzzle           | <input type="checkbox"/> First person shooter |
| <input type="checkbox"/> Action/Adventure | <input type="checkbox"/> Strategy/Simulation  |
| <input type="checkbox"/> Fighting         | <input type="checkbox"/> Racing               |

Appendix C

Age: \_\_\_\_\_

Gender: M F

1) CH\_\_R

2) \_\_NEY

3) \_\_ILL

4) \_\_NCH

5) BLA\_\_K

6) \_\_IT

7) DR\_\_E

8) \_\_IVE

9) \_\_UN

10) \_\_ICK

11) SPI\_\_

12) \_\_ATE

Appendix D

Test key

Age: \_\_\_\_\_

Gender: M F

- 1) CH\_\_ \_R
- 2) \_\_ \_NEY
- 3) KILL
- 4) PUNCH
- 5) BLA\_\_K
- 6) HIT
- 7) DR\_\_ \_E
- 8) \_\_ IVE
- 9) GUN
- 10) KICK
- 11) SPI\_\_ \_
- 12) HATE

## Appendix E

### The Next Tetris

Object: Manipulate falling blocks to form lines at the bottom

1. Press start to skip to the title screen
2. Press start at the title screen
3. Press directional button right to highlight "Tetris Classic"
4. Press the A button to begin

#### Basic Controls

- Use directional button to move blocks left, right, and down
- Press A to rotate blocks
  
- If you "top out" (i.e., game over) press start twice to try again

### Mars Matrix

Object: Maneuver spacecraft through enemy fire and destroy enemy attackers

1. Press start to skip to the title screen
2. Press start at the title screen
3. Press start to select "Arcade Mode"
4. Press start to select red ship
5. Press start to skip intro

#### Basic Controls

- Use Analog Thumb Pad to manipulate spacecraft
- X button – Fire main weapon
- Right Trigger – Fire Piercing Cannon
  
- When continue prompt appears, press start twice to continue
  
- When "Game Over" appears, follow steps 2 – 5 to continue

### Virtua Fighter 3tb

Object: Defeat opponents in hand to hand combat using various techniques

1. Press start to skip to the title screen
2. Press start at the title screen to begin Team Battle Mode
3. Press A three times to select the character "Akira"

### Basic Controls

- Use directional button to move character
  - X button – punch
  - Y button – kick
  - A button – defend
  - B button – sidestep (evade)
  - Left and Right triggers – change camera view
  - Press buttons in various combinations to try advanced moves
- 
- At the continue prompt, press start

**DISTRIBUTIONAL SURVEY OF THE GOLDEN-WINGED  
WARBLER  
AND THE EFFECT OF TREE SIZE ON CHOOSING A HABITAT**

**Tiffany O. Sparks and Ronald A. Canterbury**  
Department of Biology  
Concord College  
Athens, WV 24712

**MCNAIR SCHOLARSHIP PROGRAM**

# DISTRIBUTIONAL SURVEY OF THE GOLDEN-WINGED WARBLER AND THE EFFECT OF TREE SIZE ON CHOOSING A HABITAT

Tiffany O. Sparks and Ronald A. Canterbury  
Department of Biology  
Concord College  
Athens, WV 24712

## MCNAIR SCHOLARSHIP PROGRAM

### ABSTRACT

The Golden-winged Warbler is an endangered neotropical songbird of the northeastern U.S. and southern Canada. The Golden-wing population has declined in recent decades because of replacement by its sister species, the Blue-winged Warbler. Hybridization and ecological competition are believed to be two reasons why Blue-wings replace Golden-wing populations. The Blue-winged Warbler is believed to dominate interactions between these two warblers and hybridization between these warblers apparently favors Blue-wings. Anthropogenic changes of habitats are also believed to favor Blue-wings over Golden-wings.

Current theory, however, predicts that Blue-wings exclude Golden-wings from optimal breeding habitats. In this study we examined the habitat selection of Golden-winged and Blue-winged Warblers and their hybrids in an attempt to determine if habitat selection differs between these hybridizing wood warblers, and whether Blue-wings exclude Golden-wings from "optimal" habitats.

We found essentially no difference in habitat selection between these two species. Habitats chosen by Golden-wings, Blue-wings, and hybrids did not differ in amount of herbs, shrubs, or trees (Kruskal-Wallis  $H \leq 2.09$ ,  $p \geq 0.351$ ). Average tree size (diameter at breast height, dbh in cm) and the number of dead trees used as singing perches also did not differ among territories



occupied by Golden-wings, Blue-wings, and hybrids (Kruskal-Wallis  $H \leq 4.47$ ,  $p \geq 0.107$ ).

Site localities determined whether a particular area was occupied by Golden-wings, Blue-wings, or mixed populations (Spearman's  $r = 0.411$ ,  $p < 0.030$ ). Amount of herbs, shrubs, trees, tree size (dbh in cm), and number of dead trees were not associated with species occupying the territories. This refutes the hypothesis that Golden-wings are habitat specialists associated with the herb stage of secondary succession. Consequently, future studies are needed to resolve differences in habitat selection between these closely related migrant songbirds and to determine how Blue-wings replace Golden-wings from optimal breeding territories.

## INTRODUCTION

The Golden-winged Warbler (*Vermivora chrysoptera*) is a neotropical migrant songbird which breeds in the eastern United States (Confer 1992). In recent years, the Golden-winged Warbler population has dropped considerably. Many theories have been formulated as to what is causing this decline. Some propose that it is parasitism by the Brown-headed Cowbird (*Molothrus ater*), which lays its eggs in the Golden-wing's nest (Confer 1992). Others believe that it is competition and hybridization with the Golden-wing's sister species, the Blue-winged Warbler (*V. pinus*), that is causing its decrease in numbers (e.g., Gill 1980, Canterbury et. al. 1993). This is a valid argument, because while the Golden-wing population is decreasing, the Blue-wing population is rapidly increasing (Confer and Knapp 1979, Gill et al. in press). Still others believe that it is the diminishing habitat that is contributing to the endangerment of the Golden-winged Warbler (Confer 1992). All of these theories have been tested repeatedly, but still no clear answer has been found. Researchers are no closer to agreeing on a cause for the

Golden-wing's rapid decline, and even farther from finding a solution.

Until the last decade, most of the studies conducted concerning the Golden-winged Warbler had taken place in the northeastern states, where the Golden-wings are expanding their range (e.g., Confer and Knapp 1977, Confer 1992). It has only been in recent years that the studies have moved into West Virginia, where the Golden-wings are still abundant (Canterbury 1993).

One of the most recent theories is that of parasitism of Golden-wing nests by Brown-headed Cowbirds (Confer and Coker 1990). The Brown-headed Cowbird is expanding into the Golden-wing range (Confer and Coker 1990). Confer and Coker tested the hypothesis that Golden-wings are more apt to be parasitized than Blue-wings. They found that although cowbird parasitism is a small problem for Golden-wings, it is also a problem for Blue-wings. Therefore, this doesn't account for the replacement of Golden-wings by Blue-wings.

Some leading experts feel that the drop in Golden-wings is due to direct competition and/or hybridization with the Blue-winged Warbler (e.g., Gill 1980, Confer 1992). It is generally thought that the Blue-wing is the more aggressive of the two birds. Keeping this in mind, it seems likely that the Blue-wing would be the victor in most agonistic encounters. While this is often true (Will 1986), most researchers report that the two species more often than not ignore each other (Ficken and Ficken 1968a, Gill and Murray 1972, Canterbury et al. 1996). Their territories often largely overlap, usually causing no aggression on either side (Murray and Gill 1976). However, it has been suggested that Blue-wings and Golden-wings take similar foods (Ficken and Ficken 1968b). The Competitive Exclusion Principle states that two species that have the same ecological needs and are limited by the same resource can't coexist in a stable environment (Confer and Knapp 1977). It is therefore doubtful that the two species can remain

sympatric (Ficken and Ficken 1968b).

Molecular analyses of hybridization indicate that Blue-wing mtDNA introgresses asymmetrically and perhaps rapidly into Golden-wing phenotypes without comparable reverse introgression (Gill 1997). However, Murray and Gill (1976) concluded that despite continued interbreeding and introgression, parental phenotypes still dominate the warbler population. Hybrids, Brewster's (Golden-wing x Blue-wing) and Lawrence's (Brewster's x Brewster's or Brewster's x parental phenotype) warblers, are still fairly rare (Murray and Gill 1976).

The final problem that is usually addressed is the amount of suitable habitat for the Golden-winged Warbler. It is generally agreed that Golden-wings prefer open spaces, such as abandoned farmland in the early stages of succession (e.g., Confer and Knapp 1979, Frech and Confer 1987). In West Virginia, they stick close to places such as abandoned strip mines and cut-over forests (Canterbury 1993, Canterbury et al. 1993). The decreasing abundance of their preferred habitat and/or secondary contact with expanding Blue-wings has led to a northern range expansion of Golden-winged Warblers (Confer 1992). It has been said by Confer and Knapp (1981) that the Golden-wing is a habitat specialist while the Blue-wing is a habitat generalist. This basically means that while the Golden-winged Warbler has a specific preference for early secondary successional habitat, the Blue-wing can live and thrive in a broad range of habitats. Golden-wings usually disappear locally within fifty years of initial contact with Blue-wings (Gill 1980) and in southern West Virginia Blue-wings often replace Golden-wings within five years of initial contact (Canterbury et al. 1996).

While an important aspect of this research is to study the overall decline of the Golden-wing, the main focus is to try to determine the effect of tree size on choosing a habitat and the whether

Golden-wings and Blue-wings choose different stages of seral succession. When surveying locations where Golden-wings are known to breed, a large number of Black Locusts (*Robinia pseudo-acacia*) were found (Canterbury et al. 1993). We want to determine if there is a difference in the number of Black Locust and other trees found in Golden-wing and Blue-wing territories, and if so, what the reasons could be.

### METHODS

This study is part of a long-term research project now in its twelfth year and conducted by researchers from the Three Rivers Avian Center (TRAC). In late May and early June, we surveyed sites in southern West Virginia, which in previous years had held breeding Golden-wings and Blue-wings. We drove to strip mines, abandoned farmland, and cut over forests, and listed all of the birds that we heard singing at each site (approximately 1/8 mile distance between each site) according to their alpha code (AOU 1988). We played a taped Golden-wing or Blue-wing song to verify the identity (species) of each bird. If there was a Golden-wing or Blue-wing in the area and it seemed interested in responding to the song, a mist net was set up to band the bird for subsequent identification and the Global Positioning System (GPS) units (longitude and latitude) were recorded for each territorial male bird. A "dummy" bird was placed on a low branch behind the net, while the tape recorder playing the song was placed under it to attract the bird to the net (Canterbury 1994). The Golden-wing or Blue-wing who answered the call perceived the "dummy" bird as another male who was invading its territory. The territorial male bird either became very agitated and aggressive and attacked the "dummy" bird or flew away to guard its mate from extrapair copulations. If the male bird tried to fly at the "dummy" bird it

may have become entangled in the mist net. Captured birds were removed carefully by one of the experienced banders of the research team of TRAC. Captured birds were then photographed and banded with a USFWS band and unique color band system (Canterbury 1994). Two tail feathers were taken for shipment to the Smithsonian Institution for DNA analysis of hybridization (Shapiro and Canterbury unpubl. data). Plumage characteristics were recorded for each banded bird, such as level of introgression (genes of the sister species), predicted age, etc. (see Gill 1980). The bird was released, the net was taken down, and we moved to the next site / territory.

In August and early September, after the majority of the birds had migrated back to the tropics and vegetation had completed its yearly growth, we returned to four separate localities to quantify vegetation at each site where a bird was found. We compared vegetation components of pure Golden-winged Warbler, pure Blue-winged Warbler, and mixed populations. The vegetation was divided into three different layers: the grasses and herb layer, the shrub layer, and the tree layer. We also included the dead tree layer since these are abundant in Golden-wing territories, and are used as singing perches (Canterbury et al. 1993). We used Confer and Knapp's (1981) scale for quantifying vegetation of territorial males of both species, and rated each layer in relation to its density on a scale of 0-2 with 0 being little or no vegetation of that type (herb, shrub, tree layers) and 2 being very abundant vegetation of that type. We then measured 30 meters into the bird's territories and randomly measured tree size (diameter at breast height, dbh). Several, anywhere from twelve to twenty, trees were chosen at random, identified to species, and their diameter measured. By using this method, we determined the number of Black Locust trees in a territory in proportion to the number of other trees. We also determined the number of Black Locusts in a Golden-wing territory in proportion to the number of Black

Locusts in a Blue-Wing territory.

## RESULTS

We found essentially no difference in habitat selection between these two species. Habitats chosen by Golden-wings, Blue-wings, and hybrids did not differ in amount of herbs, shrubs, or trees (Kruskal-Wallis  $H \leq 2.09$ ,  $p \geq 0.351$ ; Table 1). Average tree size (diameter at breast height, dbh in cm) and the number of dead trees used as singing perches also did not differ among territories occupied by Golden-wings, Blue-wings, and hybrids (Kruskal-Wallis  $H \leq 4.47$ ,  $p \geq 0.107$ ; Table 1).

Site localities determined whether a particular area was occupied by Golden-wings, Blue-wings, or mixed populations (Spearman's  $r = 0.411$ ,  $p < 0.030$ ). Amount of herbs, shrubs, trees, and tree size were not associated with species occupying the territories (Table 2). Figure 1 shows that tree size did not differ significantly among Golden-wing, Blue-wing, and hybrid territories. Furthermore, Blue-wing, Golden-wing, and hybrid territories did not differ for the number of tree species or the number of Black Locusts (Table 3).

## DISCUSSION

The Golden-winged Warbler's rapid decline is an area of concern. Indeed, the interaction between Golden-wings and Blue-wings has been well studied for more than a century. At present, the Golden-winged Warbler is considered an endangered species throughout much of its range, and with the replacement by the Blue-wing and the destruction of their habitat, we don't know how much longer they can continue to exist. If we can determine what part, if any, that

succession plays in the Golden-winged Warbler's success, then in the future we may be able to provide suitable refuge areas for these small, colorful songbirds.

The correlations between species and tree size, edge size, canopy, presence or absence of moisture, and level of succession are summarized in Table 2. Data on edge size, canopy, and presence or absence of moisture were compiled by other members of the TRAC research team, so that we may examine the influence of multiple factors that may determine habitat selection in these sister species. We found that there was no discernable difference in the habitats selected by Golden-winged Warblers than the habitats preferred by Blue-wings. We also found no correlation between species and tree size. More research is needed to determine what environmental factors are selecting for the Blue-winged Warbler and against the Golden-wing.

#### ACKNOWLEDGMENTS

This study would not have been possible without support by the McNair Scholarship Program and the Nongame Wildlife Program of the West Virginia Department of Natural Resources. We thank Ryan Alter, Dollie Stover, and Allen Waldron for assistance in data collection. We also thank Sandy Canterbury and Tommy Stover for travel assistance.

#### LITERATURE CITED

American Ornithologists' Union. 1988. Check-list of North American birds, 7<sup>th</sup> ed.. Allen Press, Lawrence, Kansas.

Canterbury, R.A. 1994. Banding News: A *Vermivora* study. Redstart 61:50-53.

Canterbury, R.A. 1993. Golden-winged Warblers are common residents of abandoned surface mines in southern West Virginia. *Redstart* 60:46.

Canterbury, R.A., D.M. Stover, and N.J. Kotesovec, Jr. 1996. Population Ecology Golden-winged Warblers in southern West Virginia. Unpubl. report submitted to the West Virginia Division of Natural Resources.

Canterbury, R.A., D. Stover, and T.C. Nelson. 1993. Golden-winged Warblers in southern West Virginia: status and population ecology. *Redstart* 60(4):97-106.

Coker, D.R., and J.L. Confer. 1990. Brown-headed Cowbird parasitism on Golden-winged and Blue-winged Warblers. *Wilson Bull.* 102:550-552.

Confer, J.L. 1992. Golden-winged Warbler. In *The Birds of North America*, No. 20 (A. Poole, P. Stettenheim, and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, DC: The American Ornithologists' Union.

Confer, J.L., and K. Knapp. 1981. Golden-winged Warblers and Blue-winged Warblers: The relative success of a habitat specialist and a generalist. *Auk* 98:108-114.

Confer, J.L., and K. Knapp. 1979. The changing proportion of Blue-winged and Golden-winged Warblers in Tompkins County and their habitat selections. *Kingbird* 29:8-14.



Confer, J.L., and K. Knapp. 1977. Hybridization and interaction between Blue-winged and Golden-winged Warblers. *Kingbird* 27:181-190.

Ficken, M.S., and R.W. Ficken. 1968a. Territorial relationships of Blue-winged Warblers, Golden-winged Warblers, and their hybrids. *Wilson Bull.* 80:442-451.

Ficken, M.S., and R.W. Ficken. 1968b. Ecology of Blue-winged Warblers, Golden-winged Warblers, and some other *Vermivora*. *Am. Midl. Nat.* 79:311-319.

Frech, M.H., and J.L. Confer. 1987. The Golden-winged Warbler: Competition with the Blue-winged warbler and habitat selection in portions of southern, central, and northern New York. *Kingbird* 17:65-71.

Gill, F.B. 1997. Local cytonuclear extinction of the Golden-winged Warbler. *Evolution* 51:519-525.

Gill, F.B. 1980. Historical aspects of hybridization between Blue-winged and Golden-winged Warblers. *The Auk* 97:1-18.

Gill, F.B., R.A. Canterbury, and J.L. Confer. 1999. The Blue-winged Warbler. *In* *The Birds of North America*, (A. Poole, P. Stettenheim, and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, DC: The American Ornithologists' Union. In press.

Gill, F.B., and B.G. Murray, Jr. 1972. Discrimination behavior and hybridization of the Blue-winged and Golden-winged Warblers. *Evolution* 26:282-293.

Murray, B.G., and F.B. Gill. 1976. Behavioral interactions of Blue-winged and Golden-winged Warblers. *Wilson Bull* 88:231-253.

Will, T.C. 1986. The behavioral ecology of species replacement: Blue-winged and Golden-winged warblers in Michigan. Ph.D. dissertation. Univ. Michigan, Ann Arbor.

Table 1. Kruskal-Wallis test for population differences (Golden-wing, Blue-wing, and hybrid) for the amount of herbs, shrubs, and trees, as well as tree size and number of dead trees in breeding territories. <sup>1</sup>

	Golden-wings (n = 14)	Blue-wings (n = 10)	Hybrids / mixed populations (n = 4)	
	Mean Rank			Test statistic and significance
Herb	15.89	14.50	9.63	2.09 (p > 0.351)
Shrub	12.93	17.05	13.63	1.18 (p > 0.404)
Tree	14.25	13.95	16.75	0.39 (p > 0.821)
Tree size	13.71	12.90	21.25	3.12 (p > 0.202)
Dead trees	14.21	12.10	21.50	4.47 (p > 0.107)

<sup>1</sup> Total sample size = 28 birds.

Table 2. Spearman's rank correlation coefficients of variables measured.

	Edge <sup>1</sup>	Canopy <sup>1</sup>	Herb	Shrub	Tree	Tree size	Moisture <sup>1</sup>
Species	0.032	0.257	-0.240	0.157	0.066	0.193	0.010
Edge		0.377 *	-0.233	-0.372	0.498 **	0.642 **	0.300
Canopy	0.377 *		-0.016	-0.328	0.256	0.522 **	0.166
Herb	-0.233	-0.016		-0.221	-0.438 *	0.488 **	0.179
Shrub	-0.372	-0.328	-0.221		-0.388 *	-0.299	0.166
Tree	0.498 **	0.256	-0.438 *	-0.388 *		0.488 **	-0.082
Tree size	0.642 **	0.522 **	0.488 **	-0.299	0.488 **		-0.258
Moisture	0.300	0.166	0.179	0.166	-0.082	-0.258	

\*  $p < 0.05$ , \*\*  $p < 0.01$ . <sup>1</sup> Data contributed by Eugene Watson.

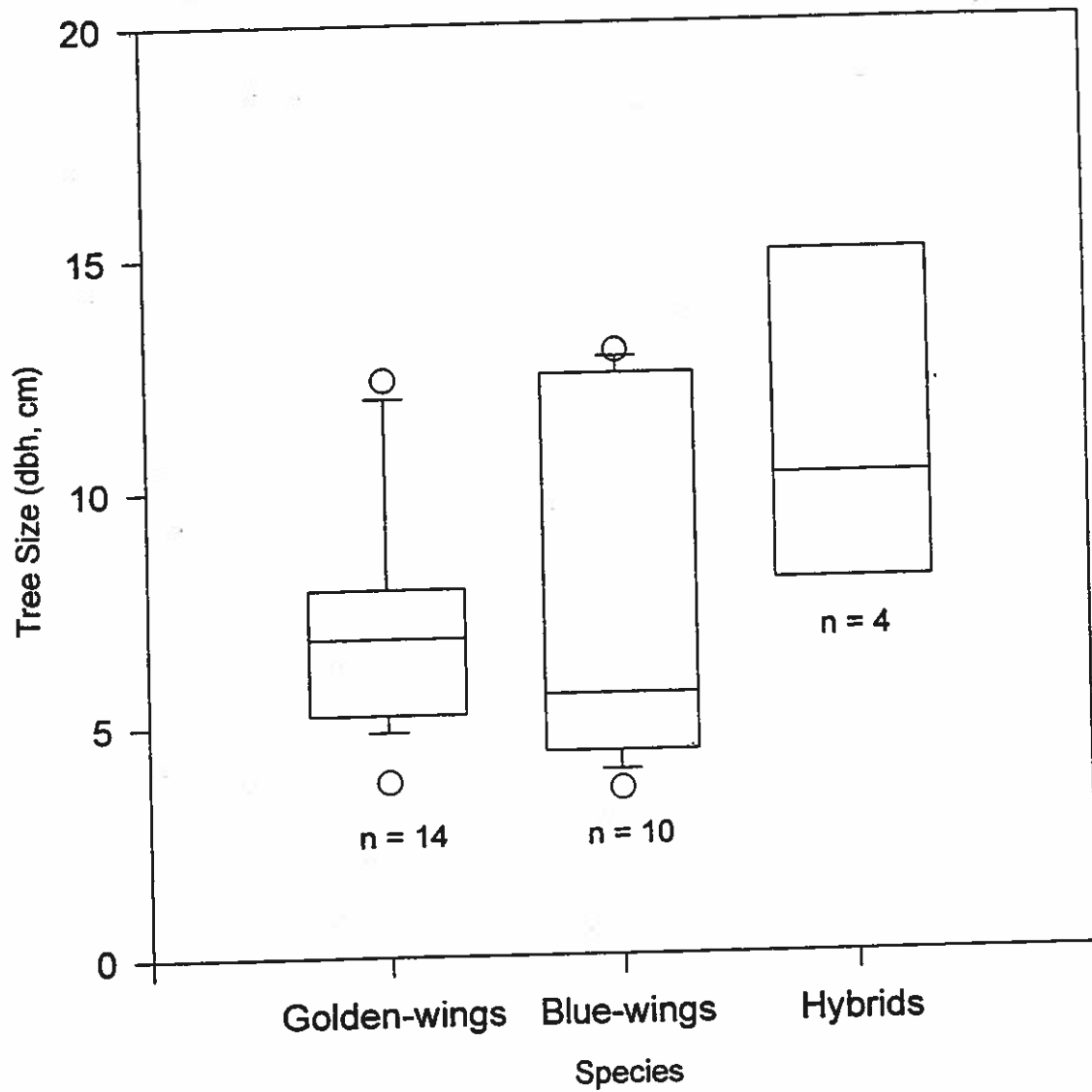


Figure 1. Box plots of tree size (dbh, cm) of territories occupied by Golden-winged Warblers, Blue-winged Warblers, and warblers with mixed, hybrid phenotypes.

Table 3. Kruskal-Wallis test for differences among Golden-wing, Blue-wing, and hybrid territories for tree species and number of Black Locust trees. <sup>1</sup>

	Golden-wings (n = 14)	Blue-wings (n = 10)	Hybrids / mixed populations (n = 4)	
	Mean Rank			Test statistic and significance
Tree species	13.68	15.25	15.50	0.29 (p > 0.863)
No. Black Locust trees	16.93	10.15	16.88	4.45 (p > 0.108)

<sup>1</sup> Total sample size = 28 birds.

Running head: RELIGIOUS IDENTITY

Religious Group Affiliation and the Identity of College Students

Laura Stokes

Concord College

## Introduction

This study focuses on religious group affiliation as it relates and impacts the individual and collective identity of college students. It is important to note that personal identification within American society plays a big role in defining whom one is, and how one is expected to react and how one actually reacts throughout life. When studying identity, many factors contribute to who a person is, including spirituality, religion and religious affiliation. However, in the literature, individual identity, and collective identity are frequently categorized as separate entities. When understanding religion, spirituality, and reflexive spirituality as they pertain to individuals, individual identity is often overlooked when studying collective identity. By using religious identity to explore the relationship between individual identity and collective identity together, one can better understand the relationship between the two.

When examining religious identity, it is crucial to understand why a person chooses to identify with a religious group. Since spirituality is a component of religious identity, the identification with such spiritual and religious groups aids in the determination of the role that religious identity plays in the lives of college students. In order to understand religion and identity for college students one must first be aware of the many facets of identity. These facets will be discussed as they appear in the literature using the following seven categories: religion and spirituality as a phenomenon; influences and theories of identity; identity, religion, and spirituality; categorization (levels of identities); self-categorization theory, social identity theory, and identity theory; group membership and belonging; and religious identity and college students.



Within the categories listed above, some crucial aspects will be discussed. These aspects include: the connections of identity, reflexive spirituality, attachment styles of group membership, perceptions individuals have toward groups, and the lack of focus on religious identity as it relates to individuals and groups will be discussed.

### Religion and Spirituality as a Phenomenon

Religious matters are often a sensitive topic of discussion. Interpretations of religion and spirituality are unique to each individual. Different types of examples can range anywhere from the following: same group membership to religious organizations; out group membership to other religious organizations; extrinsic and intrinsic religious beliefs; how spiritual a person considers him/herself to be; how dogmatic in religion an individual is; the expression of individually; and to people who do not consider themselves to belong to any type of religion; etc. Because religion and spirituality are different to each individual, this can make religiosity and spirituality a phenomenon. When understanding how religion and spirituality interact in individual's lives, it is important to reflect on how religion became a focus in research.

As material wealth gained prominence, the secularization of America became a central focus in society. Religion in America emerged within the literature in the 1950's. When new accounts of how religion was important to people's lives, the studying of the history of religion became even more prominent (Vandermeer, Swierenga, 1991.) Past studies in the fundamentals of American history had proved that religiosity influenced attitudes, beliefs, and actions in the fundamentals of American history. During the 1960's and 1970's religion became a historical subject, and progressed from the separation of institutions (Vandermeer, Swierenga, 1991), into an expansion of numerous directions.

Characteristics of religious history, including the studies of Catholicism and Protestant denominations, were the most prominent. However, the studying of Christian religion soon sought to accomplish connecting religion to other aspects of American life, such as personality (Vandermeer, Swierenga, 1991).

While the impact of religion on people's lives was gaining a major role in America, the terms "religion" and "spirituality" became a topic for consideration. The terms are considered to be intense words and value-laden because the beliefs that an individual holds are important and powerful. (Gotterer, 2001). Psychological disciplines, including clinical, counseling, health, and rehabilitative psychology are discovering how essential understanding religion in terms of an individual is important to a more in depth and more accurate view of the interconnectedness of life and lifestyle. (Emmons, 1999). The integration of religion with every day life is now being categorized under the microscope of research psychologists in the hopes of gaining insight into the roles of religion and spirituality. Religion is considered to be a type of dedicated healing that reinforces the wholeness of an individual. (Identity Model of Religion).

Therefore, to understand religious group affiliation as it relates to the individual, it is important to recognize the difference between religion and spirituality. Besecke (2001) explains religion by stating, "Religion is a covenant faith community with teachings and narratives that enhance the search for the sacred and encourage morality." Church attendance and bible readings are considered a community of Christianity and are reliable to illustrate the encouragement of life and morality. One concept of religion is "rooted in authoritative spiritual traditions that transcend the person and point to larger realities within which the person is embedded." (Besecke, 1999). Religion is also used to

describe the dynamics of religious institution. The dynamics include ways that people relate to and rely on religion within normative standards of living. Hence, religion is considered to be an expression of external faith, (such as attendance to church or temples) and worship practices, (such as prayer or meditation), with codes of ethics that unite an individual with their religion, such as Christianity. (Gotterer, 2001).

The definition of spirituality and religion is different from person to person across ethnicity, gender, class, and cultural lines, and implies an intuitive sense that there is meaning and order to the flow of life's events. (Gotterer, 2001). One description of spirituality explained by Beseske (1999) is that Spirituality is "an individual's relationship to religious meaning." (Beseske, 1999). Emmons (1999) defines spirituality as "a thought to encompass a search for meaning, for unity, for connectedness to nature, humanity, and the transcendent." The phenomenon of religion is dogmatic, and organized while spirituality reflects individual's inner beliefs, and a personal identity.

Another perspective on spirituality by Wade Clark Roof (as cited in Beseske, 2001) defines an aspect of spirituality called reflexive spirituality. Reflexive spirituality is an individual phenomenon. Reflexive spirituality is used to describe the effort individuals make in relation to the symbolism and practices to achieve personal meaning to religion, such as the meaning that is interpreted from the teachings of religious organizations, and how individuals relate to these meanings.

Understanding the relation of the concept of reflexive spirituality to religion and spirituality clarifies the meanings of these terms even more specifically. Reflexive spirituality refers to one's inner beliefs gained from organizational activities, and spirituality as the meaning inferred from ones personal standpoint in life (the internal

expression of faith), while religion is a persons guidance with an external expression of faith. A vital difference between religion and spirituality is that religion is institutional and universal, while spirituality is how an individual defers the meaning of religion to life. Reflexive spirituality encompasses a combination of religion and spirituality in an individual while deferring messages gained from religious settings and interprets these messages to the individual in order to gain a religious identity. By understanding the difference between religion, spirituality, and reflexive spirituality, one can help to better understand identity as it relates to an individual, and for specific purposes of this study, college students.

### Theories of Identity

Integrating certain theories of identity are pertinent to understanding how identity has been categorized into different levels. Examining the many theories of identity is important among different fields of discipline. Early psychologists believed that identity could not be altered, but new identity theories have emerged. Research has discovered that aspects of identity can be measured, although it remains under scrutiny how identity may change over people's lifespan. (Howard, 2000). The study of identity has become central in the discourse of sociology, and was first introduced in the works of Cooley and Mead (Cerulo, (1997).

The term identity is an innermost focus in social and psychological theorizing and research. The concept of "who a person is" is the central theme of identity. (Doosje, Ellmers, Spears, 2001). Gotterer (2001) adds to this term by defining identity as evolving and revolving process, applying to different dimensions of everyday life, from the groups that we cohere with and are embedded in, and personally, of the distinguishing

characteristics between ourselves and others. Therefore, one can be led to assume that the concept of identity is complex in its context. Identity can be formed to fit any concept that would describe the self. Approaches to identity vary according to the structure of identity, interactions and processes. Identity has been placed into various categories, including group identity (at the social and collective level), individual identity, (at the personal or self level), and religious identity (at the religious or spiritual level) to determine where religious identity exists at each level. One can therefore be lead to assume that religious identity may be included within the levels of the identity according to the individual and group. For that reason, one can better understand the relationship between religious identity interacting with the group level and spiritual identity interacting with the individual level, but not the process of involving religion with both individual and group identity as a systemic process which involves observing religious identity as a holistic process. The holistic process takes the position that it is important to look all the systems of a person's religious identity to obtain a more accurate representation of the complete individual.

The link between identity and categorizations of different types of identity are better explained when applying theories relevant to this study. Various identity theories attempt to clarify the elements of the "self." Some of these theories can be grouped together with the social identity theory, self-categorization theory, and the identity theory. These theories have evolved as a way to construct the formation of identity and to explain the complex elements that lead to an understanding of the self, including how religion and spirituality define one's self. As Gotterer (2001) points out, "the religious identity of some clients is inseparable from their individual self-concepts."

The fields of Psychology, Sociology, and Social Work, in recent times, have largely neglected religiosity and spirituality in the discussion of identity. In Social Work, religion and spirituality are areas that provide deep discussion for understanding the needs of individuals. People in these professions need to have a greater awareness of individual matters since spirituality is such an important factor in determining a role of religious identity as it relates to individual identity. (Gotterer, 2001).

It is imperative to note that Emmons states that the relative neglect of religion in the social sciences is an irony because personality psychologists are involved with the understanding of a person. (Emmons, 1999). Thus, it is essential to understanding how religion relates to an individual's identity structure.

#### Categorization (Levels of Identities)

When breaking down identity into levels and categories, identity is seen more clearly and specifically. According to theorists, different "levels of identity" exist. These categories include; (1) individual identity, (2) social identity, and (3) religious identity with specific reference how an individual perceives him or herself to be among these categories. Individual Identity (also known as personal identity) is the key foundation for the studies determined by "an individual's sense of self" (Cerulo, 1997). "Issues of the self and identity are usually conceptualized at the level of the personal self." (Doosje, Ellemers, Spears, 2002). How a person perceives and interprets themselves and the environment around them is at the level of individual identity.

An important aspect of the individual self is the collective self. The collective self yields to different aspects of the individual self (Howard, 2000). It is not only a

determinate of social identity (Jasper, Polletta, 2001) it is the perceptions of the personal self at the collective level. (Howard, 2000). Collective Identity is defined as an individual's cognitive, moral, and emotional connection with the broader community. Collective identity has accounted for why people participate in groups and are persuaded to mobilize. How a person describes himself or she to be, how environmental facets influence people, and why people choose to participate and belong to specific groups are reflections of his/her values and beliefs. (Jasper, Polletta, 2001). Collective identity is a shared relation that helps form part of a personal identity, carries positive identities for a group, and establishes interests, relations, and structures. (Jasper, Polletta, 2001). Collective identity's focus immerses into groups, and assists people in promoting and understanding a part of their personal identity. Also, it addresses similarities of the "we-ness" of a group that is considered to promote the social construction of identity.

Collective identity can be interpreted as part of individual identity that is expressed at the group level. (Doosje, Ellemers, Spears, 2002). At the collective level, scholars are reassessing mechanisms where distinctions between the collective self and the individual self are created, maintained, and changed. (Cerulo, 1997). Although the collective self is a submissive interpretation to the individual self, it guides a perceptual, affective, and behavioral response within one's social identity. Similarities are consistent between each identity, relying on the factors as stated previously. (Doosje, Ellemers, Spears, 2002).

Collective identity relies on ethnicity, gender, sexuality, social class, age, and disability. (Howard, 2000). Social Identity is a multidimensional construct and a learned knowledge base from being a member of a social group, which is ascertained with

emotional bonds and connections to his/her membership. (as cited in Cameron, 1999). Social Identification is often correlated to life satisfaction (Cameron, 1999). Also known as group identity, social identity is determined largely by being maintained in the surroundings it is located in. Social groups are considered a separate entity, but exist for the individual members. Social groups are determinates of "an individuals thoughts, feelings, and social behavior" which is central to self-categorization theory and the social identity theory (Smith, 1999). Understanding the phenomenon of how other categories of identity affect religious identity is key to understanding parts of individual and collective identity. Specifically viewing religion and spirituality as it pertains to identity, the description of these theories is relevant to develop a basic concept of religious identity.

#### Self-Categorization Theory, Social Identity Theory, and Identity Theory

The various identity levels are inter-related. Understanding individual behavior on each level is crucial to understanding how different aspects of identity create the whole. The Self-categorization theory and the Social identity theory evolved from Henri Tajfel and John Turner in the 1970's and 1980's. Both theories provide a reference to the individual self and the social self. The context of the self-categorization theory and the social identity theory explain what people will rely on in its entirety; their group or personal identities, but is specific to contextual factors. For example, "people can think, feel, and behave" in terms of social identity (Social Identity Theory) or personal identity (Self-categorization theory. (Seta, 2001).



In relation to both theories, the importance of group membership for a person's individual definition will influence the person's identity as it relates to groups. The social identity theory refers to both the content of individual identity as well as associated strengths to social categories, which may operate separately, according to contextual factors (Doosje, Ellemers, Spears, 2002). Although, social identities and personal identities have been previously approached as opposites of each other and categorized as different aspects of identity, the saliency of this theory as being opposites of each other is questionable. (Howard, 2000). The self-categorization theory has evaluated factors that may represent the individual identity as a concern, in which perceptions and behavior of group identity and individual identity is only reliable to which category is the contextual factor. (Doosje, Ellemers, Spears, 2002). For example, group identification underlies social influence, and social influence undermines personal characteristics (Smith, 1999). Therefore, one can be led to assume that characteristics of personal identity maintain a blurred relationship with social identities that people may integrate into everyday lives. Together, a person's religious identities are an integral part of human culture, and have the potential to shape individuals lives and personalities (Emmons, 1999).

There is a relation among religious and spiritual identity in the realms of individual identity and group identity. People may perceive their lives as more worthwhile, unified, and meaningful because of religion and spirituality. (Emmons 1999). Religion produces outward responses that enhance a person's being, and outlook of life. (Gotterer, 2001) Robert Emmons (1999) authored *Religion and the Psychology of Personality*. He supports the principle that spiritual practices, goals and beliefs are a distinctive component of the personality. For many, the core of personality and faith in

religion finds satisfaction, happiness, self-esteem, hope, optimism, and meaning of life to be significant factors of mental health. (Emmons) "Spiritual concerns such as hope, meaning, inner strength, and doubt are relevant in many clients' lives." Every one that chooses to go on living operates by some basic faith. (Kirpatrick and Holland, 1990, as cited in Gotterer). According to National Polls, 90% of Americans believe in God. (Emmons, 1999). When integrating religion and spirituality, however, research is limited on how religion could possibly lead personal identity and social identity

There are extensive amounts of literature on religion. The identity theory is a maintained relationship between religion and identity, and provides a framework for understanding the large amounts of data existent on the literature of religion in the social sciences. (The identity model of religion). Considering the understanding of a person as a whole is an important aspect of scientific study. (Epsitien, 1996, McAdams, 1997, as cited in Emmons, 1999). If religion reinforces wholeness, and a group (with consideration of individual identities) is a process of wholeness, then a person can receive full benefit of being a holistic person, with the strength and ability to negotiate between the two identities. (The Identity Model of Religion, 1979). Therefore, religious identity in relation to a group is a benefit for exploration in the area of the social sciences.

### Group Membership and Belonging

Group membership is an important factor for group identity and individual identity can vary according to theories that involve factors, such as how committed a person is to groups, how a person relates to a group, and even if a person can not relate to specific groups. According to the Social Systems Theory, members of the same group

may be seen as either/or, depending favorably to that group. For example, a person will derive a sense of self, either positively or negatively, with that group. (A negative group membership in accordance with individual identity is not necessarily negative.) (Doosje, Ellemers, Spears, 2002). The self-categorization theory and self identity theory assumes that all people benefit from groups because they provide a source of "esteem, value, and identity." The reason theoretical resources in the areas of social science is needed is because it will join mental models in order to provide a comprehensive framework to develop a full understanding of group members within groups and the interaction that actively pushes self identity and group identity together (Smith, 1999). With the literature, Doosje, Ellemers, and Spears define commitment to groups as an indicated and associated strength that is attached to a social category. (2002).

Together "commitment" (Doosje, Ellemers, Spears, 2002 "change," and "sameness" (Identity Model, 1979) are determinants in understanding identity as a whole. Change within groups and the individual is important for the functioning of a "whole" making process. The Social Work profession must maintain a tendency toward change and sameness that balance each other. The existence of balance between sameness and change can prevent chaos and can attain order in regard to identity. (Identity Model, 1979).

Perceptions of Religious Identity are hindered within one's life. When one is socially identified with a particular denomination, or religious group, a perception is made. First hand information (such as people's expectations and perceptions) usually provides a more realistic judgment for perceivers. Others personalities may also be linked to expectations they hold on groups. (Stukas, Synder, 1999). Generalizations are

made by characteristics connected with group membership. A large amount of data constitutes that the social identity phenomena illustrates the powerful impact on perceptions, emotions, and behavior. However, the importance self-perception and the perception of others are based on the individual and which identity perceive is more important. The perceptions of group's people relate (or do not relate) to in terms of characteristics of that group. This means that a group membership, "depending on the frame of judgment," will affect the way other people perceive an individual. (Doosje, Ellemers, Spears, 2002).

The need for belonging to groups increases awareness for the need to better understand individual identity, as well as the fundamental importance to relationships that group identity is interfaced with. Attachment and commitment to groups fulfill the need to belong. Experiences in every day life are evident that belonging is a factor in determining psychological, social, and spiritual health. All individuals feel the need to be connected with others. This intrinsic need is salient, in that it is a survival mechanism and excludes external threat. If the need to belong is fulfilled, positive outcomes (joy and caring relationships) are gained. The dynamic of religion should be considered when interpreting the need to belong in groups. Spirituality is considered an interpersonal process, and religious groups may provide more than just a framework to fulfill the need to belong, promoting interpersonal thinking about lives and the future, and also the capability to share goals with each other. Membership to a religious group steps outside the boundaries of the group into personal life. (McRay, Thompson, 2001)

### Religious Identity and College Students

The dynamics of religion and identity is a complex and intriguing facet in research. This is exemplified throughout the field in religious studies. Relationships that involve religious beliefs in a higher being such as God illustrate the work of attachment styles. (Kirkpatrick, 1998). Different types of attachments exist, including religious attachment to communal affiliations (such as a religious groups on college campuses), and more specifically, spiritual matters (such as attachment to God). According to Kirkpatrick (1998), studies on college students in introductory psychology courses provide a relevant example in illustrating attachment styles in accordance to the Christian belief in a supernatural being. The attachment theory responds to this message by conveying different types of attachments. The types of attachments conveyed from the reading are a positive attachment style and negative attachment style. Positive attachment styles infer a secure attachment or anxious attachment, and negative attachment style includes avoidant attachment. Secure attachment sees attachment to a religion to be reliable and trustworthy, for themselves to be worthy of such love and care. Anxious attachment styles see attachment as a greater level of intimacy that is emotional powerful. On the contrast of avoidant attachment styles, some may see religion as redundant and arbitrary, and find difficulty in believing that there is a God. (Kirkpatrick, 1998).

The attachment theory illustrates an individual difference in the matter of religious identity among college students. In the attachment theory, God is considered to be an attachment figure, with which an individual may have a personal attachment.

(Kirkpatrick, 1998). The exploration of attachment styles at the religious level will render to understanding individual attachment to groups as it relates the college population.

Understanding group membership is complex. For example, the social identity theory and the self-categorization theory both assume that all people depend on or have attachment to groups. (Smith, 1999). While studies have discussed the dynamics that groups might have on individual well being; (Cameron, 1999) the religious identity that is involved in groups and how it affects spiritual identity is still an issue that fits the need of exploration when looking at the "whole" of the individual. Attachment styles and other relevant theories may provide ways of understanding how identity is determined.

Because religious identity may be the hierarchy of an individual, it is important in considering the effects this may have in relation to individual identity and collective identity. From the research reviewed, literature accomplishing the task of identifying with the needs of religious identity within the college population is weak. "Despite the fact that between one quarter to two thirds of college students rely on religious beliefs and coping," (Emmons, 1999) a study was done to explore management for coping strategies and self-handicapping in undergraduates that stated, "we considered the use of religion to be irrelevant to the college population." (Zuckerman, Kiefer, and Knee, 1998, as cited in Emmons, 1999) Due to the weakness of intrinsic knowledge, information on this phenomenon is limited.

Theories that are best suited are applied in order to understand the complexity of individual identity and group identity as it relates to religion and spirituality. Various factors contribute to the exploration of how religious identity is maintained in the life of a

college student. Commitment and attachment styles are highly advanced variables, and include taxonomy's from developments in other studies clarify how highly a person is committed, and how attached a person might be. The importance in understanding individual identity and group identity as it relates to religion and spirituality fill the need for exploration.

## Methodology

### Overview

To better understand the relationship between religion and group membership, a phenomenological study was conducted. Few studies can be found that attempt to relate religious identity and a college student's need to belong to a group. A phenomenological study was chosen because of the intent to explore the overall structures exhaustively and the sensitivity that relates to religion. (Creswell, 1998). Using in depth interviews as a method for data collection was the most appropriate for this research. This section will include a detailed discussion of each of the following: the qualitative research, the methodology chosen, the sample, data collection, and data analysis methodology.

Various factors give importance to the qualitative analysis of the role religion plays in the lives of college student's. First, identity has many facets in development. For example, a group identity will not only have effects of identity at the individual level, but affects the group as a whole. Although this topic is most intriguing, the subject is not widely researched. It is imperative at this level of research to understand the difference in religion and spirituality, as stated in the literature review. To ensure spirituality is in fact examined, a qualitative study is crucial, consisting of personal in-depth interviews with participants.

Religiosity and identity have been explored previously through various measurements that have been predominately quantitative in nature. To measure the spirituality of one person, the dynamics of the group to which this person belongs to must also be taken into account. Based on the literature, the following 3 questions were asked of each participant. The questions were: Explain growing up and religion? What role



does religion play in your life now? How has being a member of your religious group impacted you? Therefore, for the purpose of this study, participants will only be those who are actively involved in a religious group.

### Sample

The participants of the study were single college students with out children, ages 18 to 24, who all attended Concord College. All were active members of Christian groups on campus and volunteered to complete the interview process. The participants had to be actively involved with at least six months of membership and attend the meetings, consisting of attending two out of four times the group would meet per month. Due to time constraints, the sample was obtained using a snowball procedure. The participants were informed of the confidentiality of the research and were offered a copy of the final results of the study. Two pilot interviews were examined to ensure the accuracy of the sample.

The questions asked of the participants relates to religious affiliation and the personal identity and collective identity of college students. Five interviews were conducted and evaluated from five different Christian religious organizations on campus. It is pertinent to recognize that all participants declared the Christian religion.

### Materials

All research was conducted in in-depth interview sessions with participants. An audiotape was used to ensure the accuracy of the research, and so as to not lose the tone and context of the interview. Participants signed consent forms, listed in Appendix A. Also, a researchers journal was maintained to track the researcher's own thought process

and to be utilized during data analysis for comparison and understanding and to increase the accuracy of the analysis.

#### Data Collection Process

After approval by the Human Subjects Review Board, two pilot interviews were conducted. During this process, it was determined to exclude students with children or married students. Their responses focused more the spousal/parental role than the student role. All interviews were conducted in a semi-private/private setting in which the participant was comfortable and able to talk about his/her religious beliefs and spirituality openly. The qualitative analysis process consisted of a five-step process. The following steps in accordance with McCracken's "The Long Interview" implemented the design.

Prior to this study, two pilot interviews with the mentor reviewing the interviewing process were conducted. The research also was approved by presented the literature and proposal to the Human Subjects Review Board. The type of interview used was formatted using open-ended questions. This process allowed for all needed information to be gathered in a timely fashion in order to "get under the common place view of the activity and see how the individual really sees and experiences it" (McCracken, 1998).

#### Data Analysis Process

The data analysis processed, which was used, included five levels of analysis. The five step process includes: (1) examining utterances, with little regard to the larger significance, (2) developing each observation from step 1, (3) shifting away from the main body of the transcription, (4) identifying major themes, and (5) reviewing stage 4 and bringing together all themes from the participant's transcripts while comparing and

contrasting the actions of the thoughts of the participants, collaborated themes into a thesis. It is extremely pertinent to note that the audiotapes of each participant were used so that tone was not lost. The listening phase of the analysis process was used within the first step of the process.

## Results

From the interviews, themes emerged that are imperative to understanding the relationship of college student's identity in accordance to individual and collective identity. To truly understand the impact of religion on college student's lives, religious affiliation, collective identity, and individual identity of an individual were the main focus for analyzing in the following section.

Three major themes emerged as they emerged from the data analysis of the interviews. These themes include: A families involvement in church is important for the development and enhancement of collective identity; individual identity and collective identity are associated with religious identity; and collective identity was reevaluated after individual identity was explored.

## Themes

### *Familial Involvement*

One of the themes most apparent in the literature is that a family's involvement in church is vital for a foundation and further involvement of an individual's collective identity and individual identity. The systemic process involved with an individual's identity includes how participants continue to be involved as college students. All of the

participants explained their involvement in church and related activities that were associated with religious affiliation on and off college campus.

When discussing religious involvement, the participants explained their church affiliation and the participation of their family members in church related activities. All participants were involved with church related activities and continue to be involved. Participants related their group involvement as a family experience. For example, one participant explained that the members in their group were their "brothers and sisters in Jesus Christ." Another participant explained their group as "being as close as family." Also, like roles that are defined in family, all members share a common bond of having a declared role in their religious group. For example, one participant explained that she was "a life long friend" to the members of the group.

Participants explained the importance of their group membership. Again, they referred back to their families' involvement in religion. All participants explained how their family went to church and kept them involved with church related activities. For example, one participant said "My mom and dad made sure that I was at church every Sunday, even if I didn't want to go. I guess they knew what was best for me. Now, my mom and dad have a closer relationship than ever and I love my... (Christian group on campus)...I stay involved as much as I can. I even go to church with my parents on the weekend." Another participant explained how their group membership could not be separated from their personal relationship with God. "I wouldn't have the relationship I have with God if I did not participant with God's other people." The importance of group membership, as explained in the literature, is crucial to the development of a collective identity.

Collective identity was developed before participants explored a religious identity. In doing so, participants reevaluated their individual identity. Participants explained how going to church was usually used as “a place to hang out” when they were young. Most participants did not know the “real reason for going to church....” Four participants explained going through a reevaluation process of their individual identity and developing a relationship with God.

Participants explained the importance of gaining a spiritual relationship with God. In the literature, individual identity is related to becoming spiritual. When relating spirituality to individual identity, it is important to understand the dynamics that take place. All of the participants explained how they reevaluated their religious identity at a specific time in their life. One participant rededicated their life to God. One member got saved at the age of 12. One member converted from one religion to another religion. Two members converted denominations. The participants who reevaluated their religious identity also reevaluated their collective identity. For instance, one participant explained, “After I got saved I changed churches because I wanted to become more involved. I wanted to participate in youth group.”

#### *Religious Involvement*

The second theme to emerge in the interviews is that individual identity and collective identity is associated with religious involvement. In accordance to individual identity, people who belong to a religious group experiences a heightened sense of spirituality. All participants described their relationship with God and how their religious groups bring them to a closer relationship with God.

As stated in the literature, the importance of a spiritual relationship lends to the health and well being of a person. All participants explained the importance of a religious identity, in so much, as it assists individual identity in direction, guidance, and importance in one's life. Four participants clarified that relations in church and religious activities helped aid in the direction of an individual seeking a relationship with God. The need for group involvement for a gain in personal identity is assisted by need to increase their level in spirituality. For example, one participant described their religious identity by stating; "I could not separate my religion by just reading the bible and talking to God. I have to communicate with the members of the group. If I don't I am missing out on one of the most important aspects of being a Christian.

Religious Affiliation is therefore an outward response to increase the spirituality level of an individual. But, in order for an individual to feel a heightened sense of spirituality, one must feel membership within the religion they belong. In terms of collective identity, one gains a sense of membership. By being involved in a religious organization, one increases the sense of belonging. The increased sense of belonging increases a fulfillment of collective identity.

#### *Reevaluation of Collective Identity*

The third theme that emerged was, participant's collective identity was reevaluated after religious identity was explored. All of the participants reevaluated their group membership after reassessing their religious identity. Participants explained their need to find a place to which they could belong after going through the rededication/saved/conversion process. They all explained the importance of having a religious identity before you can find the group that you can truly belong to. Collective

identity and religious identity are determinants of which group people will choose to belong. All participants explained a basic belief system, which includes the following: a realization that every one sins in life, sin can be forgiven, and you can find completeness and wholeness in life. Participants explained how they would feel a loss of personal identity if they did not have God/Christ in their lives. They also discussed a gain in personal identity through their collective identity in relation to a religious identity.

Religious Identity was used to explore the relationship between individual identity and collective identity. All participants explained the need to be collectively involved in a Christian group. All participants reevaluated group belonging after explaining a transformation process. All participants explained how a family's belonging to a church has impacted their decision to stay involved with Christian groups they can relate to.

Understanding the relationships that identity has with one another is very crucial to the importance of this research. Throughout the interviews, participants described how family values in relation to religious upbringing is important to the enhancement of an individuals collective identity. Collective identity and individual identity is maintained from an individual's spirituality level. For example, one participant explained "Its not like you can separate church and personal time with God. Both help you to build a closer relationship with God. And in that matter, the members help you to stay involved with your Christian life and make sure you do not stray from the path you decided to take a long time ago."

Individual identity is important to understand when assessing why a person chooses to identify with the group they choose. For example, one participant explained that one of the reasons she was involved was because it made her feel like she could

relate to other individuals that were like her. She said "It's like...you know...when you feel like the whole world is against you and nobody accepts you for you, but the group does. You can go to the group, and they understand who you are. You believe in God and they believe in God and that gives you a foundation." This statement is pertinent to the research because it displays group belonging.

It is important to understand that collective identity and individual identity relate to each other when studying religious identity. Collective identity is maintained through individual's identification within a group. The religious identity that individual's pursue in life is pertinent to an individual's sense of belonging. As individuals need to belong is fulfilled, the spirituality level is increased. Thus, the spirituality of an individual is increased, which leads to a more developed and refined religious identity.

#### Discussion/ Relevance to Social Work

This study will add to the existing body of research in the realm of social identity. The results from this study will attempt to support the claim that in order to understand the whole of personal identity, collective identity must be examined. Not only does one rely on personal identity to represent who a person is to the world, he/she also relies on collective identity to show what he/she believe in. Collective identity is not simply an outward appearance of a group; it is an infiltrated aspect of one's personal conception of the world around them.

There are a few aspects of this study that should be a focus for improvement within future research within this realm of social attachments. First of all, the rural area in which this study was to be conducted restricted the diversity of the sample. This could



possibly skew the results of the study in such a way that the members of the group may have known each other outside of the college environment.

Secondly, the definition of spirituality is one that is not easily understood or explained. When studies are created, a tool must be designed in order to allow for better understanding of the basic concepts for the participants. The definition of spirituality that will be used in this study could possibly hinder the gathering of information. By using a definition of a term that is normally such an individualistic idea, the participants may feel that their ability to explain themselves and their beliefs is suppressed. Future research should refine the definition to be more acceptable within religious circles as well as for qualitative analysis.

Attachments develop over a lifetime, and people may become more or less attached to religious beliefs and deities as they develop over their lifetimes. Also, age may limit the way people in a certain category are perceived to fit.

Also, by using college students for the study, it is difficult to discern the origin of the need for attachments. By leaving home and experiencing life in a new perspective, i.e. college life, a person may feel the need to belong somewhere and chance may play a role in the type of group one falls into in order to fulfill the need of belonging.

It is important to recognize future research studies that will benefit from the understanding of how this research determines a cyclic and systemic approach. From a systems approach in Social Work, the whole is greater than the sum of its parts. When studying a religious group phenomenon, it is important to look at the whole. For example, Christian groups only provide a limited scope on the realm of religion. There

are many other religions that need to be taken into account when studying group identity and individual identity.

Another limitation to this study is the sample size. It is difficult to assess such strong questions with five participants. A larger sample would be recommended to ensure for higher reliability.

## References

- Besecke, Kelly (2001). Speaking of meaning in modernity: Reflexive spirituality as a cultural resource. *Sociology of Religion* 62: 3, 365.
- Cameron, James. (1999). Social identity and the pursuit of possible selves: Implications for the psychological well-being of university students. *Group dynamics: Theory, Research and Practice* 3:3. 179-189
- Cerulo, Karen A. (1997). Identity construction: new issues, new direction. *Annual of Sociology* 23, 385-409.
- Chaves, Mark & Gorski, Phillip S. (2001). Religious pluralism and religious participation. *Annual Review of Sociology* 27, 261-281.
- Dillon, Michelle (1996). The persistence of religious identity among college catholics. *Journal for the Scientific Study of Religion* 35: 2, 165.
- Ellemers, Naomi; Spears, Russell; & Doosje, Bertjan (2002). Self and social identity. *Annual Review of Psychology* 53, 161-186.
- Emmons, Robert A. (1999). Religion in the psychology of personality: An introduction. *Journal of Personality* 67:6, 873-887.
- Gotterer, Rebecca (2001). Spiritual dimension in clinical social work practice: A client perspective. *Families in Society: The Journal of Contemporary Human Services* 82: 2, 187.
- Howard, Judith A. (2000). Social psychology of identities. *Annual Review of Sociology* 26, 367-393.

- Kirkpatrick, Lee A. (1998) God as a substitute attachment figure: a longitudinal study of adult attachment style and religious change in college students. *Personality and Social Psychology Bulletin*. 24:9. 961
- Mol, Hans (1979). The identity model of religion: How it compares with nine other theories of religion and how it might apply to Japan. *The Japanese Journal of Religious Studies* 6/ 1-2.
- Polletta, Francesca & Jasper, James M. (2001). Collective identity and social movements. *Annual Review of Sociology* 27, 283-303.
- Reiss, Steven (2000). Why people turn to religion: A motivational analysis. *Journal for The Scientific Study of Religion* 39: 10, 47-52.
- Seta, John J.; Seta, Catherine; & Hundt, Gregory (2001). Exaggerating the differences between relatively successful and unsuccessful groups: Identity orientation as a perceptual lens. *Group Dynamics: Theory, Research and Practice* 5: 1, 19-32.
- Smith, Elliot; Murphy, Julie; & Coats, Susan (1999). Attachment to groups: Theory and measurement [interpersonal relations and group processes]. *Journal of Personality and Social Psychology* 77: 1, 94-110.
- Snyder, Mark; Stukas Jr., Arthur A. (1999). Interpersonal processes: The interplay of cognitive, motivational, and behavioral activities in social interaction. *Annual Review of Psychology* 50, 273-303.
- Thomson, Delores A. & McRay, Mary B. (2001). The need to belong: A theory of the therapeutic function church tradition. *Counseling and Values* 46: 1, 40.
- Wood, Wendy (2000). Attitude change: Persuasion and social influence. *Annual Review of Psychology* 51, 539-570.

Zinbauer, Brian J. (1998). Spiritual conversion: A study of religious change among college students. *Journal for the Scientific Study of Religion* 37: 1, 161.

## . Appendix C

## Assurance of Confidentiality

I, \_\_\_\_\_, understand that my participation in this research project is entirely voluntary. I understand that I am free to withdraw from the interview at any time and may refuse to answer any question asked of me. I understand that identities will be kept confidential and will be available only to members of the research team in order to properly analyze the data. Under no circumstances will my name, or any identifying characteristics, be included in any report hereafter.

\_\_\_\_\_  
signature

\_\_\_\_\_  
date

\_\_\_\_\_  
Laura C. Stokes, researcher

\_\_\_\_\_  
Dr. Ellen Darden, Concord College Social Work Department

Appendix B

Consent to Record Interview

I, \_\_\_\_\_, willingly allow Laura C. Stokes to record this interview on \_\_\_\_\_. I understand that all recordings will be destroyed after all data has been analyzed and the final results have been gathered.

\_\_\_\_\_  
signature

\_\_\_\_\_  
Laura C. Stokes, researcher

\_\_\_\_\_  
Dr. Ellen Darden, Concord College Social Work Department

Appendix A

1. Growing up, what role did religion play in your life?
2. What role does religion play in your life now?
3. How has being a member of your religious group impacted you?