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LETTER FROM THE PRESIDENT

30 March 2012

To the Cabrini College community,

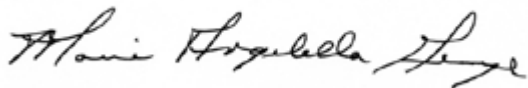
It is an honor to celebrate those who contributed to the fourth edition of the Cabrini College *Journal of Undergraduate Research*. This volume is an excellent representation of a tradition of extraordinary undergraduate student research at Cabrini College and of the faculty mentors who inspire students toward academic excellence through their scholarship.

Undergraduate research can promote transformational learning, one that does not end with a completed project or a passing grade. When students are given the support to pursue their own research, they are also given the opportunity to connect their classroom learning with the realities of the world around them. This is the education that we seek to offer at Cabrini College – real world, hands-on experience that nourishes the intellectual soul and prepares students to become leaders in their chosen field after graduation. Undergraduate research is a dynamic pedagogical tool that promotes greater gains in student learning, personal initiatives and communications skills. The opportunity for in-depth, faculty-mentored research can lead a student to lifelong creative and critical thinking.

Students undertaking research encounter learning on an exciting level—supposition, theory, discovery, unsuspected outcomes, and challenges transcend the typical classroom environment. Often the experience will enhance professional and academic credentials to support applications for scholarships, awards, career employment and entry in graduate or professional schools. The experience is also a rare opportunity to develop a one-on-one rapport between a student and a faculty mentor, while simultaneously reinforcing the class subject matter. Finally, the opportunity to share research with peers builds confidence, improves communication techniques and cultivates lasting leadership skills.

With academic excellence as a hallmark of the College's mission of providing students with an "Education of the Heart," undergraduate research is fundamental to a successful college experience. I extend my deepest appreciation to the *Journal's* editor, its editorial board, its contributing students and their faculty mentors for producing the works contained in this volume and for sharing it with the Cabrini College community.

May you have continued success in all future endeavors,

A handwritten signature in cursive script, reading "Marie Angelella George". The signature is written in dark ink and is positioned above the printed name.

Marie Angelella George, Ph.D.

EDITORIAL STATEMENT

EDITORIAL STATEMENT

The Cabrini College Journal of Undergraduate Research is an annual, reviewed publication dedicated to the discovery, promotion and publication of outstanding work done annually by Cabrini undergraduates. The Journal's Editorial Board reviews, selects and cultivates the best work for inclusion. Drawn from The Undergraduate Arts, Research, & Symposium- an annual event where students present and showcase their research to the College community- the Board seeks academically rigorous and distinctive efforts that demonstrate Cabrini students' evolution into public intellectuals with a firm grasp of the stakes and conventions of meaningful scholarship. Articles are selected for publication based on their scholarly and rhetorical quality. They are from all disciplines, and exemplify one or more of the following accomplishments

- An original research project
- Unique contribution to the scholarship of the student's field
- A new interpretation of an intellectually important problem; phenomenon or text
- An interdisciplinary endeavor that suggests an innovative approach to an altogether new subject for scholarly inquiry.

The board also considers for publication any work of artistic merit that demonstrates academic seriousness and intellectual ambition.

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SOCIAL SCIENCES

The Power of an Idea Can Change the World:
Analyzing Constructivist Theory

Author: Dana Berardi

Faculty Mentor: Shelby Hockenberry, Ph.D.

Abstract: This research focuses on how Constructivist international relations theory answers many of the questions and uncertainties states face in the international arena. Understanding why states and the international community, as a whole, makes the decisions they do, can be analyzed through the lens of this theory. Constructivism offers a new perspective by taking an approach other international relations theories have not – that, according to Wendt, “ideas matter”. By looking at the history and origin of Constructivism as a major contemporary international relations, understanding international events becomes more clear. This research also provides a look into why Constructivism is a better theory than realism or liberalism, which both emerged before it, and whether there are any limitations to the theory in analyzing current or future international events.

The Power of an Idea Can Change the World:

Analyzing Constructivist Theoryⁱ

Throughout history, ideas have been a source of change in the United States, as well as throughout the international community. For example, the United States witnessed this change during the Civil Rights Movement. One man’s dream and idea symbolized and fostered the progression of the Civil Rights Movement. Martin Luther King Jr. was a part of social change in American society in the 1960s because of his dream and others who shared a similar vision. The question that now remains is how the power of ideas can affect the world as a whole. Whether some may agree or disagree, the states around the world and their actions reflect on the actions of other states. Sometimes this can be positive, as seen through the creation of intergovernmental organizations, such as the United Nations and the European Union, but other times this may lead to war. After all is said and done, it may become difficult to see the origin of what started the UN or the EU, but ultimately every “thing” starts as an idea. The Constructivist

Theory uses the method of ideas as a simple approach of explaining past, current, and future politics of the world.

In order to make some sense of the world we live in and how to interpret why states act the way they do, political scientists and scholars alike have proposed different theories suggesting answers to this question. The Constructivist theory is much different than the other international theoriesⁱⁱ because the theory looks at the powerful role ideas play in international politics.ⁱⁱⁱ For example, a constructivist would not deny the impact money and weapons could and may have in international relations, rather they would view money and weapons in terms of how the people using the money and weapons intend to use them or how they, in general, think about them. Constructivists take a step-back approach. They do not assume everything is the way it is because of physical resources or power; constructivists look at what causes physical resources and power to be of importance, which leads to looking at the basic idea behind everything. While the basis of other theories look at the power side and states as actors, Constructivism looks at the purpose or rather the “why”. Within this purpose, Constructivist Theory focuses on interests, identities and norms.^{iv}

I. Constructivism Defined

Interests become a key aspect to the Constructivist theory, because understanding states’ interests help other states interpret or predict a state’s behavior. Constructivists then question where a state’s interests come from. Constructivist theorists have found that interests are “socially constructed,^v” meaning it is not objects or interests that shape people, but, in fact, groups of people together determine the goals of society.

Identity, as defined by Constructivists, discusses who the actors are and how actors view themselves and other actors.^{vi} In the other international relations theories, identity is seen through the state as a given, but what is unique about Constructivists is that they take into account an identity can change over time and how shared identities can lead to alliances in the political arena. For example, look at the spread of Democracy. It has created a shared identity among world states. Having a common

identity, constructivists argue is just as important in affecting international relations as the economy or war.

Norms, in the context of Constructivists and international relations, is defined as “shared ethical principles and expectations about how actors should and will behave in the international arena and social identities, indicating which actors are to be considered legitimate.”^{vii} Constructivists believe norms are important, because those who do not follow those norms in the international community are viewed differently and sometimes pay a price for going against norms. Not only do norms affect how the international community will respond, but norms are also responsible for influencing a state’s interests and identity.

II. Historical Background

As research shows, Constructivism is a fairly new approach, having first entered international relations theory in 1989, but looking more closely at the research will show that Constructivism is new in the sense of it is finally being formally used to explain international relations. However, it is not new, in the sense that the basic methodology has been used since the 1700s. Immanuel Kant, a professor of philosophy, wrote “Perpetual Peace,” which served as a precursor for Constructivism. Kant argued the knowledge people obtain about the world will always be subjective because it will filter through human consciences.^{viii} Writings from an Italian philosopher Giambattista Vico from the eighteenth century also prove this. In his writings, Vico stated, “The natural world is made by God, but the historical world is made by man.”^{ix} What Vico meant by this is that all people, men and women alike, make our society. States and the state system are artificial;^x they are constructs of our imagination, interests, identity, and norms. Men and women are responsible for creating a state and they also have the ability to change it and develop it in new ways. This Constructivist perception can be understood more clearly in the United States Declaration of Independence Preamble:

“We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new

Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness.”^{xi}

Even from the Declaration of Independence, traces of Constructivist thinking can be seen through the spread of Democracy. Yes, the British colonists were trying to gain independence, but if one observes and analyzes these words from an international theorist point of view, and a Constructivist point of view none the less, you can see that, even in 1775, people believed they were the ones who ought to be influencing and running government. During 1775, this idea was basic and primitive in form, yet in the twenty-first century, political scientists could not disagree how significantly the idea of Democracy has constructed a social norm within society.

Constructivist theory can seem challenging to understand because it can be extremely abstract at times, but also because it is a fairly newer theory. The Constructivist approach began becoming popular in the 1980s in North American international relations.^{xii} With the end of the Cold War, scholars of international relations were trying to apply one of the international relations theories to analyze the Cold War and found they could not. The theory was formally introduced and named in 1989 by Nicholas Onuf,^{xiii} which attracted more scholars and followers, along with the contribution of Alexander Wendt, who published many articles and a book on the topic *Social Theory of International Politics*. “Theory-Talks”, an interactive forum for discussion of debates in international relations, with an emphasis on the underlying theoretical issues,^{xiv} interviewed Wendt, who talked about an article he published, called *Why a World State is Inevitable*. He said, “My main argument is basically that what individuals and groups most want is not security or power or wealth, but recognition of, and respect for, their rights. And since that can only be realized under law, we have a material base for a world state.”^{xv} His contributions and research greatly developed the Constructivist theory over the past twenty years. Then in 1989, Francis Fukuyama, an American philosopher, political economist, and author published *The End of History and the Last Man*.^{xvi} The book pushed forward with the Liberal theory approach and Fukuyama proclaimed that Democracy would eventually overcome and dominate the world.^{xvii} He was endorsing the idea’s approach, but it was an approach for concrete liberal ideas. Constructivists saw this and sympathized a

bit, but realized their focus was not on promoting liberal ideas, but on promoting ideas in general and roles of thinking. Between the end of the Cold War and the realization that Constructivists felt differently than liberalists, the stage was set for a new international relations theory. Its creation also derived from inspiring theoretical developments in other social science disciplines, such as philosophy and sociology.^{xviii}

III. Constructivists' Place Among Other International Relations Theories

Developing and debating a theory is all well and fine, but the true testament of whether or not this theory is of actual importance is if it works and can be applied to past, current and future events. One would not be researching or analyzing this theory if they did not feel the significance of the worth or impact it poses to international relations. The first question researchers may ask themselves while trying to decide if this theory makes logical sense is what drives society? Researchers have found that it cannot be solely about money or war. It cannot be solely about obtaining resources or having the most power or most dominant military. What drives the world to become a global society, to want these things or to feel the need to have them? The answer seems almost too easy to be ideas, but that is the core argument of Constructivists and they believe their theory has a valid point. In order to demonstrate the logic and plausibility of Constructivism, one must understand the other theories in International relations.

First is the Realist Theory. The main variants of Realism are to always get more power. The state is always in a state of anarchy and the state is always going to war to gain more power.^{xix} Simply put, Realism focuses on the state as a primary actor in international affairs and suggests power as the primary purpose. What this theory lacks to include is states are not always at war with other countries and in fact, states can and do get along with other states. The next theory, Economic Structuralism can be summed up into one sentence: The motive behind this theory is that economics is the driving force behind politics and is a primary source of power.^{xx} This is a logical theory, but theorists find it very difficult in proving that every account in international relations boils down to economics. Then there is the Poststructuralist Theory, which derives from examining how concepts influence International relations. Finally, the last and most comparable to that of Constructivism is Liberalism. Liberalist Theory in the most basic shape

forms its principles on the fact that states do not always have to be in a state of war; that states cooperate with other states to overcome their problems on all sorts of issues, even to work towards peace.^{xxi}

Once one understands the basics of the other international relations theories, there are two different perspectives that can be unpacked about Constructivism. First, Constructivism can be used to analyze many events in the international sphere during the past century. Alternatively, Constructivism is entirely too broad and, because of its broadness, how could it not be the “answer” to everything? The good part about these two choices is that scholars and political scientists alike experience the same dilemma.^{xxii} They question, what is it about Constructivism that accounts for more than the other theories; that if none of the theories seem to be the answer, what is it about Constructivism that makes so much sense? The answer is that Constructivism is about ideas. An idea is just like a cell. A cell is the smallest part of a living body. Ideas are the smallest part of international relations theory and the source of everything and anything that exists in the world today. Ideas influence actors who, in turn, decide what actions to take, given any set of events.

“Actors” in international relations, as they have been called are comprised of the states and countries of the world. Constructivists believe that states choose their course of action within the social constructs of society and that states proceed with a course of action after forming an opinion or idea about social constructs.^{xxiii} Social Constructs, such as money, borders, international law, treaties and rules on global governance, exist when actors create them from their actions and beliefs, or preferably from their ideas.^{xxiv} This position begs the question of why and how anything exists in international politics. Why did the Cold War pose such a threat to other states? Why did the Cold War end the way it did? Why do organizations such as the United Nations and European Union, whose primary purpose is to work towards peace, exist? Why did the international community feel the need for these organizations to be created? Why is there an international law system? What made states decide the world needed this? Why do states establish and hold conferences to discuss topics such as climate change? It is not because of Realism - that is for certain. There are a lot of questions that surround past events and current policies and organizations, but their origins began from a community of state actors who had a vision somewhere

along the way. Constructivists take these questions and show how ideas and norms matter and how an evolution of sorts takes place amongst states.^{xxv}

IV. Application of Constructivist Theory in War

The Cold War was a conflict between the United States and the Soviet Union during which no actual hard power war broke out, but had the significance to dominate world politics from 1946 until 1991.^{xxvi} The United States feared the Soviets were rapidly developing a nuclear arms program and would attack the US.^{xxvii} The US was almost positively sure that was what was going to happen in 1962 with the scare of the Cuban Missile Crisis. The reasons Constructivist theory is a significant lens to use to observe the Cold War are first to consider that the Soviets actually were not as developed in their technology as the US thought. For example, Sputnik was not as advanced as the United States thought, but the Soviets were able to take this idea and play with the social constructs, or identity, that existed at the time to appear more powerful than they actually were. This same approach was used as a way to create the nuclear arms race. Constructivists argue “material resources only acquire meaning for human action through the structure of shared knowledge in which they are embedded.”^{xxviii} Because the United States considered the Soviet Union an enemy, allowing them to build nuclear weapons remained out of the question. The Constructivist theory applies in terms of the Soviet’s identity, and how the United States interpreted their identity. The theory also applies in terms of norms. During the nuclear arms race, what the Soviets were doing was considered by the US as going against the norm. However, if for example, Great Britain were building nuclear weapons, it would not have been as much of a worry to the United States because they considered Great Britain a friend. Another piece to consider about the Cold War was the way in which it ended. The war ended because each side realized they had more to gain by cooperating and working together than in keeping false and misleading appearances.

Constructivist theory can also be used to investigate the beginning of the Iraq War. Ironically, some of the reasons that the United States went to Iraq, or so they claimed in 2003, were due to the belief that Iraq had Weapons of Mass Destruction (WMDs).^{xxix} The United States never found the WMDs and whether Iraq actually had them is another question, but, for Constructivists, none of this matters.

Constructivists, as mentioned earlier, look at states actions in terms of the society in which we live and as a result, Constructivists consider and look into this idea of how a false idea is still as potent as the actual weapons themselves. They also, similar to the Cold War, take into consideration the idea of whether the United States considered Iraq an enemy and if this is some way escalated or affected the outcome of the United States actions. With all of this talk about war and cooperation you may be thinking this sounds a bit like some of the other theories of international relations, but a Constructivist argument provides a better understanding because it looks at the source of change and not at the intended benefits such as money or power, it looks at the purpose.

V. Application of Constructivist Theory for Peace

Constructivism is not a theory about solely interpreting war; it also can be used to interpret the formation of Intergovernmental Organizations (IGOs). One of the reasons, theorists discredit some of the other theories in comparison to Constructivism is because of the creation of IGOs. IGOs such as the United Nations and the European Union were created to promote cooperation, collaboration, and peace between states. One of the UN's primary goals is to promote "effective international action [while] competing with the goal of preserving state sovereignty."^{xxx} The European Union also works for cooperation among European states. It has become so respected among Europeans that to some extent "the EU might be considered a single country, or a confederation, rather than an IGO."^{xxxi} If the Realist theory really was the answer behind international politics, how would it explain the creation of the United Nations or the European Union? Many do not believe it could. Some theories of International relations consider the state as the primary actor in politics and the world, but Constructivists, believe it is the issues, identity, and norms of a society that run world politics and affairs. The existence of IGOs is proof that Constructivist theory is logical enough to explain and predict international relations because even though existence of IGOs explain the Liberalism theory, Constructivism picked up where Liberalism left off and went one step further. Liberalism is all about cooperation, but through constructivist theory, questions such as motive, the reason behind seeking cooperation can be investigated and answered. Not to mention, everything in international politics does not boil down to war, well likewise is the same of

cooperation. Actors form relationships for various reasons, in which Constructivist theory seeks to analyze and answer those reasons. Because the people living in specific states wanted an institution such as the UN and the EU, it was created. What made states feel the need to have a UN or EU? Was it an idea, or a feeling? The answer is both. The institutions were created over issues, amongst state identity, and within the norms of state society. From a Constructivist point of view, the creation of IGOs seems more logical amongst other theories. The states are the world actors in international relations, but individuals are the people who make up the state and who dictate, from their own ideas what they want in society and what they want to take away from society.

VI. Application of Constructivist Theory in International Law

Another example that provides a thorough way to investigate international relations and Constructivist theory is in International Law. International Law is defined as the set of rules and obligations that states recognize as binding on each other.^{xxxii} The reason this is a prime example to analyze the Constructivist theory is because of the list of questions International Law raises. Questions such as why did states feel the need to create an international law system? How is it enforced? What has resulted from it? How would a Constructivist dissect this topic? International Law began when states were looking for a system to set territorial boundaries and rules for exchanging ambassadors.^{xxxiii} This may seem like simple matters that really would not need an entire system of international law, but a constructivist would view this as states creating a way to help them regularize their conduct to avoid unwanted conflicts. A constructivist would argue that states form international law and follow laws not because they must or were compelled to do so, but because doing so becomes a state's interest.^{xxxiv} Even when states realize enforcing international law is not the easiest task, states are not deterred because they have this idea and interest to want protection. The international community has already seen two world wars. This is possibly one of the reasons more political scientists and people working in international relations are leaning towards a Constructivist approach. The international community is working together to prevent states from dominating other states and is also working to protect sovereignty;^{xxxv} the states are

focusing on working together and cooperating, but are changing the way the future will work compared to how the last century has worked.

VII. The Future of Constructivism

All of the examples explained thus far have focused on the analysis of historical events and the background of organizations through the Constructivist approach, but future events and state policies must also be considered. One area in which the international community is going to have to continue working together is with climate change. Climate Change is an issue that has been recently affecting the entire world, and it is going to take the cooperation of the entire international community to stop it. As Matthew J. Hoffman, a noted young constructivist theorist, describes in his book, *Contending Perspectives on Global Governance: Coherence, Contestation and World Order*, “There is no central authority above states, making states the authoritative actors to deal with transnational issues like climate change.”^{xxxvi}^{xxxvii} What Hoffman means by this is that states are responsible of taking charge and fixing climate change. It is the people of the United Nations who formed United Nations Environment Program (UNEP) or the Framework Convention on Climate Change (FCCC), not the entity or organization itself. Constructivists argue that international politics do not form around the state, but rather from ideas within a state’s people. This is possible, especially since in a field in which almost everything is contested, the idea of state personhood is meaningful and at some level actually makes sense and seems to be the one thing in which most of the world actually agrees.^{xxxviii} In fact, universal participation became part of how climate change was even defined.^{xxxix} Solving climate change will be no different, and with a Constructivist approach, this is possible. By understanding and having an open mind toward cooperation with other states, a new era of international relations is emerging.

VIII. Limitations and Criticisms of Constructivism

A final piece to consider when analyzing the Constructivist theory is quite simply to remember it is still just a theory. If Constructivism was the proven answer, this paper would be written entirely different, but because Constructivism is still just a theory trying to explain an ever-changing international arena, it still has its own limitations and implications. One important criticism of this theory originates

from neo-realists. Their argument is that even though Constructivists say “ideas matter,” the theory itself never actually says or provides general rules about how ideas matters, when they matter, which specific ideas will overpower a particular situation or problem^{xi} or provides substantive notions of what is good in world politics.^{xli} Then again, the answers to those questions are difficult to define, because every situation in the international world will be exactly the same. Another limitation of Constructivism stemming from the last one is uncertainty. Realists argue that “Constructivists argument downplays the fact states have difficulty in obtaining trustworthy information about the motives and intentions of other states.”^{xlii} Not being able to obtain trustworthy information can play a significant role in international relations. It begs the question of how do states ever really know what other states true intentions are. This leads to deception which is another argument against Constructivist theory. An additional critique about the Constructivist theory is that the theory is not entirely devoted as an international relations theory. Robert Jervis, a professor of International Affairs from Columbia states, “Constructivism does not, by itself, tell us something about the processes at work in political life, it does not, by itself, tell us anything about the expected content of foreign policies or international relations.”^{xliii} There is legitimacy to Jervis’ argument, Constructivism is not technically a theory of international relations, it is instead a “general theory of social process that can be used to examine international relations,”^{xliiv} a theory which studies the norms, interests, and identities of all people within social interaction. However, as argued throughout this paper, and by Constructivists alike, it is the people who drive international relations and states. Without the understanding of how people work, one could not begin to understand how politics works, similar to the difference between Psychology and Sociology. One could not understand how people function in group settings (Sociology), if they do not understand how a person thinks or operates by themselves (Psychology).

The world has the power to become the society they wish to see. Ideas, identities, and norms define what becomes of society. Embarking upon the twenty-first century, states, political scientists, historians, and international relations theorists are combining and using their knowledge to figure out how politics will progress to hopefully create a positive future. Constructivism was the result of this

collaboration and exists today as one of the theories in international relations. It is a theory that is not solely dedicated to just international politics, but is used to understand how people's ideas and thoughts are formed and how they affect those around them. The theory accounts for interests, norms, and identities in relation to how social constructs are formed and then how those constructs affect society. Although there are some opponents to the theory, understanding its content will help lead the way to states understanding and working together with one another. The fact of the matter is, in order for future states to exist, and rather for this world to still exist, states, regardless of what theory of politics and international relations they fall into, are going to have to collaborate and work together. This idea has already taken root and is becoming an interest of world states. Theorizing about how and why one state operates can be useful in the future and the world will greatly benefit from the Constructivist approach, if for example the effects of climate change wish to be reversed. If this had occurred sooner maybe the Copenhagen Accord of 2009 would have done more than just established that climate change is a problem and the states must do something about it. The future of our planet, environment and society is dependent upon how state politicians act and work together. Constructivist Theory can lay the ground work for diplomatic and productive meetings in the future. Constructivism is just a theory, but its true impact still has yet to be felt. In international politics the question that always exists is whether power or purpose drives states actions and decisions. From a Constructivist perspective, power cannot exist without purpose, without an idea. These ideas remain to be the driving forces behind power and sovereignty, which ultimately define how states will act under the power of their actors. Fox example, consider France's new government the fifth republic. The reason that four republics existed before the fifth is because the citizens, type of government, political parties, external sovereignty threats and religious influence, in simple terms could not function together^{xlv} and because of the identity, issues, and norms of this state, new governments were created. Any decision ever made, whether decisions on war, cooperation, the economy or politics in general, has a source of conception and in international relations, these decisions and ideas have significant influence on potential outcomes. The future is full of ideas and Constructivism will continue expanding to analyze those ideas just as it has this past century.

References

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- ⁱ Acknowledgment: I would just like to thank Dr. Hockenberry for insight and help on this paper and also for lending me books to help direct me in the right direction for very useful research.
- ⁱⁱ Other international relations theories will be discussed later in this paper.
- ⁱⁱⁱ (D'Anieri 2010, 95)
- ^{iv} (D'Anieri 2010, 95)
- ^v (D'Anieri 2010, 97)
- ^{vi} (D'Anieri 2010, 97)
- ^{vii} (D'Anieri 2010, 100)
- ^{viii} (Sorensen 2007, 164)
- ^{ix} (Sorensen 2007, 164)
- ^x (Sorensen 2007, 164)
- ^{xi} (The Declaration of Independence (1776) 2011)
- ^{xii} (Sorensen 2007, 162)
- ^{xiii} (Sorensen 2007, 168)
- ^{xiv} (Schouten 2008)
- ^{xv} (Schouten 2008)
- ^{xvi} (Sorensen 2007, 163)
- ^{xvii} (Sorensen 2007, 163)
- ^{xviii} (Sorensen 2007, 163)
- ^{xix} (D'Anieri 2010, 61)
- ^{xx} (D'Anieri 2010, 89)
- ^{xxi} (D'Anieri 2010, 76)
- ^{xxii} In order to give a full overview of the Constructivist Theory, the next paragraphs of this paper will focus on the limitations of the theory and some examples that really demonstrate the Constructivist Theory.
- ^{xxiii} (Ba 2005, 111)
- ^{xxiv} (Ba 2005, 111)
- ^{xxv} (Ba 2005, 115)
- ^{xxvi} (D'Anieri 2010, 441)
- ^{xxvii} (D'Anieri 2010, 441)
- ^{xxviii} (Wendt 1995, 73)
- ^{xxix} (D'Anieri 2010, 218-219)
- ^{xxx} (D'Anieri 2010, 337)
- ^{xxxi} (D'Anieri 2010, 346)
- ^{xxxii} (D'Anieri 2010, 365)
- ^{xxxiii} (D'Anieri 2010, 365)
- ^{xxxiv} As a reminder, three components defined of Constructivist Theory are identity, norms and interests.
- ^{xxxv} (Ba 2005, 119)
- ^{xxxvi} This statement somewhat reflects another theory called Postmodernism. At the heart of Postmodernism is the belief that there is no high order and that nothing in the world is absolute thoughts, politics, religion, etc (Postmodernism--What is Truth? 2002-2011); which makes even defining Postmodernism ironic. At least in constructivism, there is a less abstract approach and more simple direct interpretation.
- ^{xxxvii} (Ba 2005, 119)
- ^{xxxviii} (Wendt 2004, 289)
- ^{xxxix} (Ba 2005, 122)
- ^{xl} (D'Anieri 2010, 100)

^{xli} (Hoffman 2009, 232)

^{xlii} (Sorensen 2007, 173)

^{xliii} (Sorensen 2007, 174)

^{xliv} (Hoffman 2009, 233)

^{xlv} Hedtke James, Class Lecture, March 29, 2011.

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Effects of Gender in the Interpretation of Facial Expressions

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Abstract: Facial expressions are the windows to a person's true thoughts. For example, when someone asks another person how they look in an outfit, the person may say, "You look stunning!" However, the facial expression says, "I can't believe you're wearing that." More interesting than the actual expression is the ability to interpret the expression. This generates in this analyst's mind the question of whether gender plays a role in the ability to interpret facial expressions. In this study, 50 undergraduate student participants (25 males and 25 females) were shown twelve slides of people expressing the six primary emotions and then asked to determine which emotion was being shown. It was found that women scored more accurately than men in identifying the correct emotion depicted. Academic year, ethnicity and major of the students did not affect their ability to read facial expressions. Overall, these findings suggest that men do not interpret facial expressions as well as women.

Effects of Gender in the Interpretation of Facial Expressions

Generally it is said that women are able to interpret facial expressions better than men. This may be because typically women express their emotions more often. It may also be because most women in American societies are raised to be nurturing so they would easily be able to look at a face and tell how someone feels. Men are more often known to keep their feelings to themselves, which may result in them not being able to perceive facial expressions as well. But, is this true? Have there been studies conducted that have found this to be accurate or is it just a common myth? There are five different studies reviewed that investigate this topic.

Literature Review

A study was conducted (Fernandez-Dols, Carrera, Barchard, & Gacitua, 2008) to examine semantic processes and their importance in the recognition of emotional facial expressions. There were three different experiments conducted to test their hypotheses. The participants in the first test were shown slides of children with various facial expressions and then asked to report the emotion that was portrayed. In this test, there was no difference between male and female participants reporting the correct emotion. The second test consisted of facial expressions of athletes. Once again, there was not a significant difference between the males and females, although there was not an equal ratio of men to women (seven to thirty-four) to accurately compare. In the final test, the participants were shown pictures

of toddlers being vaccinated. Again, there was no difference in recognizing emotions through facial expressions between males and females. It was shocking to see that there was no significant difference between the genders reporting the correct emotion. It was expected that women would recognize emotions better than men. This study would be more accurate if the number of male and female participants was closer to being equal. This may have not been done because it was not a primary research interest of the researchers. However, it was expected that an outcome could have been achieved by creating a quantity balance between the genders tested. The aforementioned study would have been able to demonstrate the contrast between the genders, if any. Female representation in health studies is limited because women are viewed as emotional and would respond from that emotional viewpoint. Although it is believed that women are not fairly represented in most studies of this nature, it was not necessary in the cited study.

Unlike the previous study, Plant, Kling, and Smith (2004) investigated how the interpretation of facial expressions can be influenced by gender and social roles. There were two parts to this study. In the first test, the participants were asked to rate facial expressions that portrayed anger and sadness on a scale of “1-no emotion” to “7-extreme emotion”. The second test was similar to the first; it just added social role titles and clothing. For example, participants were shown a man dressed as a firefighter. Similar to the previous study, there was not a noticeable difference between males and females when it came to interpreting the facial expressions. However, it was mentioned that readers should not assume that men and women are equal at interpreting facial expressions because female participants heavily outnumbered male participants in this study. Unfortunately, it could not be determined which gender is better at interpreting facial expressions because of this. Again, this study gave realization to how important it was to have an equal amount of male and female participants so an accurate conclusion could be made.

It was also important to review studies conducted with participants of different ages. This study Beek and Dubas (2008) focused on participants in their late childhood and early adolescence. The ages of the participants ranged from 9 to 15 years. The purpose of this study was to examine age and gender differences in interpreting basic and non-basic facial expressions. The participants were shown twelve

different drawings of facial expressions. They were then asked to rate, on a scale from “zero to three” (zero=not at all, one=a little bit, two=basic neutral emotion, and three=very), the person in the drawing’s emotion. The four emotions tested were sadness, anger, joy, and fear. It was found that the girls had more accurate responses than the boys. Also, the older the participant was, the better they could interpret facial expressions. This suggested that the older a person is and being a female, the better they can perceive emotions. It was interesting that this was the one study that found a difference between males and females (not taking in consideration of the age variable).

Contrary to the previous studies, Hall & Matsumoto (2004) focused just on gender. The purpose of the study was to analyze the gender differences in judgments of emotions from facial expressions. The participants were shown different facial expressions and were asked to rate the presence or the absence of emotion. The emotions tested were anger, contempt, disgust, fear, happiness, sadness, and surprise. The ratings were on a nine point scale (zero=not at all and eight= a lot). It was found in the study that the ratings made by the women were more accurate than the men. This suggests that women are more likely to be accurate when judging an emotion. This study was intriguing because in the other studies there was not a significant difference in the perception of emotions found between genders.

Similar to the previous study, Collignon, Girard, Gosselin, Saint-Amour, Lepore, & Lassonde (2009) found that women outperformed men when identifying emotions. Unlike other studies where the participants would see drawings or pictures of facial expressions, this study had actors and actresses portray the different emotions. There were a total of 46 participants (with an equal amount of males and females). After they were shown a facial expression, they were asked to determine if the emotion was fear or disgust. It was found that the women responded quicker to the emotions when an actress portrayed the expression than the men. The study suggested that women are faster and more accurate at interpreting facial and multisensory expression than men. In the future, researchers should try other emotions like happiness and sadness. It would be interesting to see if the results would be the same for the other emotions.

Research studies have been conducted investigating if a certain gender can interpret facial expressions better than the other. From these studies, it has been suggested that there is not a large difference between males and females. The literature showed a relationship between gender and the interpretation of facial expressions although the cause/effect was unclear. Unfortunately, the majority of these studies did not have an equal (or close to equal) amounts of male and female participants, so I do not see much accuracy with what they suggest. In my research, I made sure that I tested the same number of males and females so my results would be as accurate as possible. This research would be beneficial to anyone interested in emotions and person perception. It may help people understand why males and females perceive people in certain ways. What was left unanswered was whether the way facial expressions were shown (drawn, pictures, acting, etc.) affected the interpretation of expressions.

For this research, focus was placed on both females and males and their accuracy on interpreting facial expressions. Does gender affect the interpretation of facial expressions? The hypothesis was that women would be able to accurately interpret facial expressions better than men due to women being more emotional than men. My independent variable (non-manipulated) was gender and my dependent variable was the interpretation of the different facial expressions.

Methods

Participants

Snowball, haphazard and quota sampling methods were used. The sample included 25 males and 25 females from Cabrini College (class levels from freshmen to seniors). The age range was 18-21 years. Participants were recruited through academic classes, in a residence hall, various student clubs, and other random people who were willing to participate in the study.

Materials

A survey was created. The questionnaire consisted of 12 multiple choice questions that asked which emotion was being portrayed. The choices for the multiple choice questions were anger, disgust, fear, happiness, surprise, and sadness. These six emotions were chosen because they are the primary emotions, as identified by Ekman, a person uses throughout their life.

Procedure

A single-group, posttest only quasi-experimental design to compare the effects of gender on the interpretation of facial expressions was used. There were mixed groups of men and women who were shown slides projected on a screen of various facial expressions. The facial expressions consisted of the six primary emotions: anger, disgust, fear, happiness, surprise, and sadness. The facial expressions were of varied ethnicities, gender and ages. After seeing each slide, participants were asked to circle the emotion that they feel was being portrayed on the questionnaire.

It was arranged for the participants to take the survey in a computer lab or classroom that had been reserved. The survey was done during weekdays, afternoon/evening hours. The participants were seated a good distance from each other to prevent copying others' answers. All participants were given consent forms. After the consent forms were signed and collected, the questionnaires were distributed. The facial expression slides were shown on the projection screen and were paused for exactly five seconds after each slide for the participants to identify the emotion portrayed. After the questionnaire was completed, all participants were debriefed.

Results

An independent-samples *t*-test was conducted to evaluate the accuracy of the interpretation of facial expressions of males and females in college. There was a significant difference between college males ($M=8.24$, $SD=1.30$) and females ($M=10.72$, $SD=1.49$),

$t(48)=-6.28$, $p=.00$. Male students had a significantly lower accuracy score for interpreting facial expressions (see Figure 1).

A one-way ANOVA was conducted to evaluate the accuracy of the interpretation of facial expressions based on of year, race, and major of the students. For year, the independent variable included 4 levels: freshman, sophomore, junior, and senior. The results were not significant, $F(3,46)=.32$, $p=.81$,

which showed that the year of students did not affect the interpretation of facial expressions. For race, the independent variable included 5 levels: African-American, Caucasian, Asian, Hispanic, and other. The results were not significant, $F(4,45)=2.28, p=.08$, which showed that the race of students did not affect the accuracy of interpreting facial expressions. Lastly, for major, the independent variable included 22 levels: Accounting, Biology, Chemistry, Communications, Criminology, Elementary Education, English, Exercise Science, Graphic Design, History, Liberal Studies, Marketing, Mathematics, Philosophy, Political Science, Psychology, Religious Studies, Secondary Education, Sociology, Social Work, Spanish, and Undeclared. The results were not significant, $F(21, 28)=1.24, p=.29$, which showed that the major of students did not affect the accuracy of interpreting facial expressions as well.

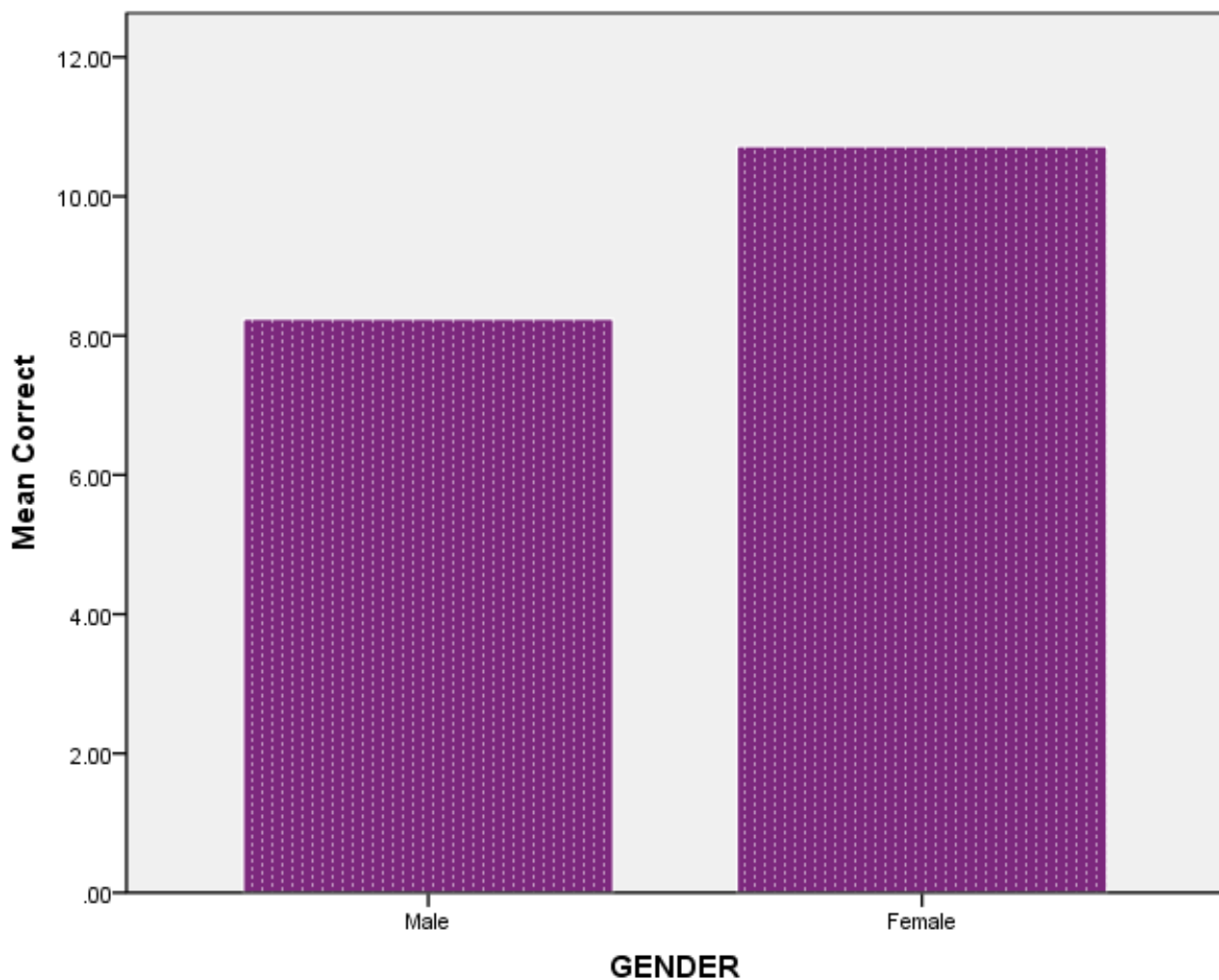


Figure 1. The Average Correct Answers from Males and Females

Discussion

Based on the results, it showed that females were better able to accurately interpret the facial expressions shown than males. This means that the hypothesis was found to be correct; women will be able to accurately interpret facial expressions better than men. Unlike the other studies reviewed earlier in this paper, the experiment sampling had an equal amount of males and females. This was done to make sure there was equality in the research which would make the results as accurate as possible. Also, from the results, it was learned that year, ethnicity and major did not have any effect on the accuracy of interpreting facial expressions. I thought that psychology, education and criminology majors would be able to score higher on accuracy than other majors because those three majors deal directly with people of all ages and races and have a greater ability to tell how they are feeling. It was also thought that seniors would be able to score more accurately than other years because they are generally older and have more experience interacting with others. However, this was not the case.

In the future, this researcher would like to broaden the sample. Due to lack of time, resources and convenience, it was impossible to acquire as many participants as desired. It would have been preferable for the ages of the participants to be more varied. Having a larger varied sample will make the results of the research more accurate and representative. It would be interesting to see if age affects the interpretation of facial expressions. It would be done by testing young children, teenagers, adults, and elders. Using more pictures of emotions would also be more ideal so there could be more range of ethnicities and age within the photos.

From this research, people will be able to understand an important difference between men and women and their ability to read emotions. It gives a better understanding of why women are able to empathize with others and know how someone is feeling just by looking at them. Knowing how to interpret facial expressions can help with any relationship. It helps let them know how the other person really feels without them actually having to say how they feel. A study of this nature, conducted on a

grander scale, has significant potential to have positive ramifications in many arenas. For instance, when choosing jurors in high-profile cases, attorneys often utilize the services of a professional to “read” facial expressions and body language. If gender is a factor in being able to “read” facial expressions, then those juror selection professionals would be led by the more innately-gifted gender. Another field that could be affected would be human resources and employee selection. Being able to read a potential employee’s facial expressions during the interview process allows the employer to have an insight beyond the words spoken. For a psychologist or similar professional, it would mean the gender better at “reading” facial expressions may have an advantage at evaluating the information given by the patient...the words speak volumes but the expression says it all. Overall, the results of this study could alter the job market in many fields. The hiring of males versus females could change depending upon the scope of the profession.

So now, thanks to the results from this research, women cannot be too upset when their male companions cannot tell that they really are not “fine”. It is not their fault; they just may not interpret facial expressions as well.

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Emerging Art Trends: Video Games as Art

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Abstract: *Emerging Art Trends: Video Games as Art*, a historiographic piece by Cabrini College senior Michael A. Costanzo, presents an interdisciplinary view of the new medium of video games as a valid art form. Taking cues from concepts found in philosophy, sociology, psychology, history and literature, this paper collates and analyzes research and work from those both inside and outside of the video game community to construct a compelling argument that supports video games as a new and exciting, interactive art form. It also introduces an underlying theme that art is a key measure of human nature, and that video games, as an art form, can offer an extraordinary new experience unlike any other before them. By calling on ideas and theories from several different disciplines, discussing the relation of art to human nature, and offering clear and understandable evidence, this paper presents a compelling view for the issue of video games as art.

Emerging Art Trends: Video Games as Art

There are some obvious characteristics that separate humans from their primate ancestors. Besides the glaring differences in physical and intellectual abilities, other societal traits exist that differentiate us from the world of animals. Characteristics, such as unspoken rules or intricate emotional and mental states of being, which we examine in sociology and psychology, permeate throughout our lives. These intangible attributes, which we so often ignore and take for granted, helped explain the evolution of human societies throughout history and continue to influence people today. They come together to shape and structure the uniqueness that means being human. Some would call it a soul, some refer to it as human nature, and still others claim it to be higher intellect. In essence, what separates us from animals is the ability to appreciate, create and partake in activities or fora strictly for entertainment's sake, such as sports and the arts.

However, people can claim that animals also create objects and structures, play games, and engage in sexual behavior all for entertainment's sake. This is true, however, these attributes and

activities are inbred into animals. They stem from some primal cognitive function. Human entertainment is something much more complex and substantial because we possess the ability to perceive abstract forms of entertainment and to seek out and participate in these forms of entertainment for more complicated and subtle reasons. Author Dennis Dutton in his book *The Art Instinct: Beauty, Pleasure, and Human Evolution*, agrees that, “while animals...illustrate generic evolutionary processes, they are completely absent from explanations of the high-order adaptations involved in the human art instinct.”⁶ He goes on to explain how animals, while they may be incredible creatures with incredible works, do not and cannot create art. By citing some examples from the animal world, he clarifies his main point, “We respect animals as the astonishing creatures they are, with purposes precisely suited to their lives. From beaver dams to African termite mounds...animals construct stunning objects and put on spectacular performances. Animals, nevertheless, do not create art.”⁶ The arts – in general – such as theatre, film and music are prime examples of this concept of what makes humans so unique.

Art – in all of its forms – is so intrinsically tied to human nature that it can act as a guide to explaining human society. Dutton discusses how evolution and art are linked and complement each other. He explains the relationship as such, “The evolution of *Homo sapiens* in the past million years is not just a history of how we came to have acute color vision...and an upright gait. It is also a story of how we became a species obsessed with creating artistic experiences.”⁶ Therefore, by studying art forms, one can glimpse into what motivates a particular group of humans, or what defines a certain era in history or a society. Despite their value, evolving art forms, specifically the media arts, have often been met with criticism and resistance.

One of the most recent and controversial forms of media are video games, or interactive media. The biggest arguments over video games focus on psychological and sociological effects, however a more recent, and admittedly less functional, debate has arisen in the video game world. The debate in question revolves around the labeling, or the lack thereof, of video games as an art form. This question of whether video games are art is an excellent opportunity to examine and understand the philosophy, sociology and

history behind changing art trends; understand societal perceptions of emerging art forms; and learn how arts can define a society.

Before viewing video games through an artistic lens, it is necessary to have a basic understanding of the troubled history of the concept of video games from dingy arcades and niche culture to becoming a multibillion-dollar industry, and especially their place in popular culture and society's perceptions regarding them. Since their inception, video games and "gamers" have been subject to negative stereotypes, disdainful reproach and condescending attitudes. A recent episode of *Law and Order: SVU* portrays this type of attitude perfectly by depicting two video gaming adults: sweating, disheveled, food-stained, ignorant and oblivious to the point of forgetting their child.¹⁴ A video game website comically describes the wider view of society toward video gamers, "Tell someone at a BBQ that you enjoy playing games and you are usually met with a look like you just told them that you like torturing small animals."⁵ Caroline Overington, an Australian journalist, agrees with these sentiments by offering the following criticism in her column for the online version of the newspaper The Australian (owned by News Corporation). "Anyone over the age of 30 who spends any time deep in some sagging sofa, console in one hand, the other down the front of their pants, imagining themselves to be a combatant in some pretend city, is lame."¹⁶ She continues her rant about the uselessness of video gamers by purposing this situation, "I know what you're thinking. Gamers, who cares? They don't participate in life in any meaningful way. As a rule, they don't even have jobs. With their wet hands and their weak chins, they'd never get through an interview. But some do have jobs. Some are, in fact, lawyers. Can you believe that? I can't believe it. I'd think: 'I'm going to jail!'"¹⁶

However, what was once considered a niche hobby has now become mainstreamed into popular culture. Even those that do not align themselves as "gamers" have unwittingly experienced what the gaming community refers to as casual games, such as those prominently featured on Facebook and smart phones.

In recent years, video games have become even more controversial, sparking several court cases and numerous psychological studies seeking to better understand and decipher the psychological and

sociological effects video games have on young people. As a medium, video games' tendency toward violent and sensational material has caused them to be persecuted and scrutinized similar to other forms of media throughout history. In November of 2010, video games received their time in the legal spotlight as a case was presented to the Supreme Court, which dealt with restricting the sale of video games to minors. During this Supreme Court case, Paul M. Smith, ESQ., – an American attorney in Washington D.C. who works in First Amendment cases – represented the Entertainment Merchants Association in defending video games. He had this to say regarding society's perception of new media and the problem with regulating video games, "We do have a new medium here, Your Honor, but we have a history in this country of new mediums coming along and people vastly overreacting to them, thinking the sky is falling, our children are all going to be turned into criminals."² Mr. Smith goes on to describe several instances throughout American history where new forms of media were prematurely and unjustly condemned and able to self-regulate or self-censor,

It started with the crime novels of the late 19th century, which produced this raft of legislation, which was never enforced. It started with comic books and movies in the 1950s. There were hearings across the street in the 1950s where social scientists came in and intoned to the Senate that half the juvenile delinquency in this country was being caused by reading comic books, and there was enormous pressure on the industry. They self -- they self-censored. We had television. We have rock lyrics. We have the Internet...²

Justice Kagan responds by saying, "Mr. Smith, do you think all video games are speech in the first instance? Because you could look at these games and say they're the modern-day equivalent of Monopoly sets. They are games."² To which Mr. Smith answers with this spirited statement, "The games that we are talking about have narrative, events that are occurring, characters, and plot. That is exactly what the State has set out to regulate here."²

While a decision is not expected for some time, the case aims to deal with the long-standing problems society has expressed toward video games, namely the violence depicted in them. While the case mainly focuses on the aspect of protecting child's social and moral development, one major facet of the case hinged on whether video games should be considered under the First Amendment. Therefore, a major question arises from the context of the arguments that has been echoed for several years now: are video games art? Does it deserve protection under freedom of speech? This stands as a perfect opportunity to study how the general population and people within the arts industry perceive "art."

To understand video games as art, one must first understand what constitutes art. Typical definitions such as those taken from a standard dictionary are underwhelming at best. One commonly accepted definition taken from the Merriam-Webster online dictionary defines "art" as, "skill acquired by experience, study, or observation; a branch of learning; and the conscious use of skill and creative imagination especially in the production of aesthetic objects."³ Their definition of the "fine arts" fares no better, "art (as painting, sculpture, or music) concerned primarily with the creation of beautiful objects; an activity requiring a fine skill."³ Deciding on an operational or objective definition of such a subjective topic is difficult. That is, the best one can do is to create a working definition. Ernest W. Adams – a former video game developer who now acts as a professor and consultant – challenges the video game industry in his 2006 journal article *Will Video Games Ever be a Legitimate Art Form* by providing a critical analysis of the state of video games in the context of art. He accomplishes this by providing working definitions of art and discussing the similarities, differences and limitations of video games in that respect. He begins by saying, "the *Encyclopedia Britannica* divides art into a number of types. Among them are literary arts: writing and drama, which are characterized by the presence of narrative...the fine arts: sculpture and painting, music and dance. There are also the decorative arts: wallpapers, fabrics and furnishings."¹ He emphasizes that the area between what is and is not art is a grey area open to interpretation by offering the example of architecture, which to some is an art and others simply an aesthetic industrial design.¹ Following his explanations of the different types of art, he offers a definition of video games as literary art explaining, "I believe that many computer games belong in the

category of literary arts with movies and television because they do contain elements of narrative, and their narrative elements can be subjected to the same criticism as other narrative arts.”¹ Adams also suggests that looking at the history of the philosophy of art is a necessary part in deciding whether video games can ever be a legitimate art form. He points out that even the philosophy of what art is has changed over the years noting,

For several hundred years it was thought that art was representational...Obviously this notion applied only to visual arts such as painting and sculpture, and not to such things as music and dance. They were considered separate forms not covered by the theory... In the twentieth century, however, this notion was largely replaced by the idea of art as expression. People began to feel that art was not meant to depict objects accurately, but to serve as an expression of the artist’s thought.¹

It is important to understand and involve the history of art philosophy in this discussion because when dealing with abstract ideas, it is crucial to have a proper frame of reference. The term “art” and all of its accompanying implications can stand for drastically different things depending on the individual as these terms and ideas are constantly evolving and changing the way the masses interpret them. Therefore, one must identify a subtle yet important difference between what *defines* art and what *is* art. Adams’ ultimate goal is not to label video games as art; instead, he looks at the situation rather critically, ending his article by pointing out several key steps the video game industry can take to earn more validation as an art form.¹ However, to some video games will never be considered a true art form.

Oddly enough, the key opponent to video games as art is someone that has nothing to do with the video game industry. Roger Ebert, famed film critic, has been staunch in his position over the past several years that video games can never be considered an art form. Beginning in 2005, Roger Ebert made a comment that video games could never be art.⁷ He states in response to a question posed by a reader, “I am prepared to believe that video games can be elegant, subtle, sophisticated, challenging and visually

wonderful. But I believe the nature of the medium prevents it from moving beyond craftsmanship to the stature of art.”⁷ He continues, making an observation that there is no game worthy of citing in comparison to the great arts, “To my knowledge, no one in or out of the field has ever been able to cite a game worthy of comparison with the great dramatists, poets, filmmakers, novelists and composers.”⁷ He does provide a concrete answer as to why he does not view video games as equal to film, “There is a structural reason for that: Video games by their nature require player choices, which is the opposite of the strategy of serious film and literature, which requires authorial control.”⁷ But the main debate stemming for his viewpoints did not begin in 2005 after this casual remark. Rather, they began several years later.

At the time he made the initial statement, video games were not concerned with being considered an “art.” Yet, while this statement gestated, the video game industry grew dramatically, making profits in the billions. The world also saw the advent of new gaming consoles that allowed people to experience video games like never before. It was during this time, roughly between 2006 to the present, that video games have evolved to the point where they resemble movie quality in a technical capacity. It was also during this time that many began to notice that video games were becoming much more complex on a narrative and emotional level. Once concerned with simply progressing from the left side to the right side of the screen with the likes of Sonic or Mario, gamers were increasingly encountering games that required more interactions of an intellectual, moral or ethical nature. Video gamers were tasked with choosing good versus evil, creating their own path or acting as “judge and executioner” as it were.

Tom Bissell – a journalist, critic and fiction writer – author of *Extra Lives: Why Video Games Matter* discusses this trend toward more intellectual and artistic games in an interview with National Public Radio (NPR). He states, “around 2006, 2007, 2008...more and more often, the games I was playing were beginning to push the buttons in me that I normally associated with really good films or really good books, questions about form, about narrative meaning and about visual meaning and what all that meant.”²⁰ He provides an example of one such game from this period, which is critically considered one of the top games of all time, “there's a game called ‘BioShock,’ which is, believe it or not, a game-world exploration of the social consequences inherent within Ayn Rand's objectivism.”²⁰ Embellishing on

this topic he provides this insight, “And you think that sounds like a heady topic for a game, and indeed it is...there's this super-smart and really elegant and frequently very disturbing exploration of what an objectivist paradise would look like.”²⁰

Video games such as this, ones where narrative is the main focus and gameplay serves the narrative, are the ones that most people cite as being worthy of the title of “art.” However, in the last year or two, the video game industry has begun actively pushing video games as art. A prime example of this current trend is the work of Kellee Santiago, president, developer and co-founder at *thatgamecompany*. In a Technology, Entertainment, Design presentation (TEDx) at USC (TEDxUSC), Santiago presents her stance that video games are already art, supporting the basic progression of video games over the past several years mentioned earlier.¹⁹ Comparing this progression with that of other art forms, she draws parallels suggesting that art forms such as painting, music and cinema had to change and evolve into the respectable art forms they are today. This point is accomplished by showing pictures of cave drawings contrasted with paintings by Michelangelo, and displaying stills from black and white movies. She argues that video games have gone through a similar progression and are now stepping into a new era.¹⁹ In addition, she deals with the concept of why games such as chess, football and Mahjong are not considered art and why video games deserved to be considered differently than other “games.” Her explanation seeks to draw a line between art and admiration, asking,

How could I say that a game as elegant as Chess, with elegant mechanics and strategy and metaphor...how could I say that that's not art? I think we have to draw a line between appreciation and art. The same reverence in which chess players hold their game could be said the same for football and baseball or Mahjong. All of these games have extremely elegant systems that have evolved over time...and still continue to amaze us. They're really great games, but they're not art.¹⁹

She does offer her own definitions of art and why other games are not included as art by answering her question, “So, what do I mean when I say ‘art?’ ... Wikipedia has a really great explanation, which is, ‘art is the process or product of deliberately arranging elements in a way that appeals to the senses or emotions.’ And so in my layman’s term I would say art is a way of communicating ideas to an audience in a way that the audience finds engaging.”¹⁹ Again, this operational definition, such as the ones before, seeks to position these terms in a way that is understandable and malleable. To add some context to these working definitions, she cites games such as *Flow*, *Flower* and *Braid* – which was also cited by Tom Bissell in his book – as prime examples of what could be considered video game art.

Although *Flower* more closely resembles video game art in the sense that its sole purpose is aesthetic and evoking emotions and ideas, *Braid* is a more complete integration between game and art, and truly gets at the heart of what supporters of video game as art intend. Focusing on *Braid* (as it is mentioned in several sources as video game art), one can see the impact of such a game. Both very commercially and critically successful, *Braid* is the work of one person. Created solely by Jonathan Blow, an independent game developer, it weaves together audio, visual, gameplay, and narrative, and uses them simultaneously to achieve its key themes, which are open to interpretation from participants.

Bissell writes about how Blow purposely built a game that would break boundaries, “Blow created *Braid* in open defiance of many commercial orthodoxies.”⁴ He goes on to discuss the weaving – or braiding – of visuals, audio, gameplay and narrative by stating, “What Blow did with *Braid* was, yes, braid gameplay with themes and motifs. The theme in question is time, which the gameplay forces the gamer to literally and conceptually play with and subvert.”⁴ He later describes the mood created with the visuals and audio, “Half the pleasure of *Braid*, at least initially, is simply to stand there, look, and listen. The combination of the visually beautiful and the music’s plangent lushness is part of what makes *Braid* look so happy but feel so sad. This was, Blow told me, purposeful. He wanted the gamer to think, ‘*This isn’t as happy a place as I thought or hoped it would be.*’”⁴ He continues by examining the emotional power of the gameplay and its themes, “*Braid* does not allow the dude to die. You...rewind the game to a point of safety and try again. What initially feels like a clever gimmick...eventually come to have

considerable emotional power: The dude is searching for someone he lost but who may not be recoverable, even with the subvention of time travel.”⁴ Santiago agrees with these sentiments, stating in her presentation, “*Braid* is a game that explores our own relationship with our past...and so the game engages the player. When I play this game it makes me think of my own history and my mistakes in the past and could we go back and actually ever make up for what’s happened.”¹⁹ Yet, despite this evidence and exposition, there are detractors to be found.

It was in response to this push toward video game art that Ebert decided to revisit his initial comments from 2005 about video games lacking the potential to be considered true art; this time more thoroughly. Now, however, his statements would be taken much more seriously by the video game industry and video gamers alike, creating an outpour from supporters of video games as art because now they had evidence and causes worth fighting for.

In April of 2010, Roger Ebert embellished on his previous comments by writing a blog post unsurprisingly titled, *Video Games can Never be Art*. In it, he directly responds to Kellee Santiago’s TEDx presentation mentioned earlier. Ebert begins quite bluntly, “I was urged by a reader... to consider a video of a TED talk given at USC by Kellee Santiago, a designer and producer of video games. I did so. I warmed to Santiago immediately. She is bright, confident, persuasive. But she is mistaken.”¹⁰ Within the article, he continues to pick apart Santiago’s presentation almost point for point by providing his own counterpoints.

First, he critiques her for not providing a decent definition. Although Ebert reserves the right to challenge her definition, it is much more than what Ebert provides his readers. Ebert does not provide anything near a working definition of art, in fact, the closest he comes to creating an actual definition is, “Plato... believed art should be defined as *the imitation of nature*... But we could play all day with definitions, and find exceptions to every one. For example, I tend to think of art as usually the creation of one artist. My notion is that it grows better the more it *improves or alters* nature through a passage through what we might call the artist’s soul, or vision.”¹⁰ Clearly, these notions are not capable as

definitions. While faltering in offering a definition, he continues into dissecting her examples of video game art.

After fully discussing *Braid* from the perspective of people in and out of the video game industry – and clearly there is little dispute as to whether it is art or not – it is interesting to see how vastly different Ebert's views are regarding this game. He proclaims quite conceitedly,

Her next example is a game named 'Braid'... You can go back in time and correct your mistakes. In chess, this is known as *taking back a move*, and negates the whole discipline of the game. Nor am I persuaded that I can learn about my own past by taking back my mistakes in a video game. She also admires a story told between the games levels, which exhibits prose on the level of a wordy fortune cookie.¹⁰

Some have argued that Ebert simply does not "get it," however, as one who involves himself so deeply with one of the great art forms of the 20th century, film, (and has become regarded as one of the great critics of that art) his remarks cannot simply be dismissed.

He calls out the fact that Santiago makes claims about these artistic games' commercial success, insinuating that video games – and those in the industry – care more about making money than being taken seriously as an art. Ebert continues, "She says, 'grown-up gamers' hope for games that reach higher levels of 'joy, or of ecstasy....catharsis.' These games (which she believes are already being made) 'are being rewarded by audiences by high sales figures.' The only way I could experience joy or ecstasy from her games would be through profit participation."¹⁰ Although, it appears the point Santiago was making involves how the gaming community desires and rewards more artistic experiences, Ebert seems to focus in on the fact that she, who he might see as representing a microcosm of the industry, are more profit-oriented. Then, somewhat ruthlessly, he waves off these games and declares that, "The three games she chooses as examples do not raise my hopes for a video game that will deserve my attention long enough to play it. They are, I regret to say, pathetic."¹⁰ Yet this quote raises an interesting message about video

games as art. Ebert states that these games do not actually entice him to play them; a key difference between passive art forms and video games. One that he claims invalidates video games as art. By offering the player the ability for input, the work in question loses some of its purpose or direction. In a different blog post that details a back-and-forth between Clive Baker – an author and director – and Roger Ebert, he says, “I believe art is created by an artist. If you change it, you become the artist. Would ‘Romeo and Juliet’ have been better with a different ending?”⁸ Player interactivity poses other problems for Ebert. Clive Baker proposes, “Let's invent a world where the player gets to go through every emotional journey available. That is art. Offering that to people is art.”⁸ To which Ebert offers this reply, “If you can go through 'every emotional journey available,' doesn't that devalue each and every one of them? Art seeks to lead you to an inevitable conclusion, not a smorgasbord of choices.”⁸

Ebert also takes issue with the fact that video games are the work of many different, sometimes diverging artistic views. He believes that the sheer number of people working so intimately with a game create a lack of artistic focus or cohesion. Ebert plainly states, “I tend to think of art as usually the creation of one artist. Yet a cathedral is the work of many, and is it not art? One could think of it as countless individual works of art unified by a common purpose.”¹⁰ Continuing, he provides another example “Is not a tribal dance an artwork, yet the collaboration of a community? Yes, but it reflects the work of individual choreographers. Everybody didn't start dancing all at once.”¹⁰ Essentially, Ebert has problems with several key components, which can be summed up into four categories: player interactivity; the lack of linearity in artistic conclusions and authorial control of the narrative; the concepts of competition, rules and winning; and the lack of a cohesive artistic direction. All of these factors, he argues, interfere with the artists’ intentions and therefore invalidate video games as art based on the very nature of video games themselves. One could dispute all of the facets of Ebert’s statements, yet that would not be conducive to the overall argument. Instead, this paper concerns itself with presenting other sources and viewpoints that create a new position for video games as art.

Many other people, both inside and outside of the video game industry, view the situation as completely open and continually evolving. Instead of writing off video games as incapable of attaining

the status of art, these people are willing to look at the subject logically and objectively in order to properly gauge it. Grant Tavinor, a professor in Philosophy for Lincoln University in New Zealand and a member of the American Society for Aesthetics,¹⁷ is one of these few people willing to do just this. Tavinor has published several works on video games. Some of his notable works include the journal article *Videogames and Interactive Fiction* and the book *The Art of Videogames*.¹⁷ In both, he aims to look objectively and philosophically at video games' potential as narratives and art.

As previously mentioned, art philosophy is an important aspect of understanding whether or not video games can be considered art. Tavinor agrees and uses art philosophy to better understand video games. He begins his book, *The Art of Videogames*, by making an upfront confession about himself to lighten the mood. "I routinely carry out acts of murder and barbarism for fun. I have beaten up old ladies...and killed a multitude of gangsters, cops, innocent civilians...I have even committed genocide. Worst of all is that though I presently find myself somewhat guilty and ashamed of my actions, at the time it was all great fun. Gaming has made me an immoral monster."¹⁸ Tavinor does not attempt to hide the fact that he is a video gamer, and indeed a violent one. He uses his position as both a gamer and a philosopher as a way to look at video games in a completely different lens than others. He claims, "I will situate videogames in the framework of the philosophy of the arts, a field that has almost altogether ignored gaming."¹⁸ Throughout the book he reviews various aspects of video games, such as their ability to create emotions, tell narratives and influence morals just to name a few.

At first, his initial quote about having fun killing and maiming innocent civilians yet feeling remorse and guilt afterward may seem like a joke or a tempo setter. Yet, later in his book during a chapter entitled "Emotion in Videogaming," Tavinor's previous comments become much more relevant. In this chapter, he focuses on explaining how video games can elicit real emotion in players, which puts his previous comments into context and also serves as one of the major arguments for video games as an art form. Regarding the impact of emotions in video games, he suggests, "It is here, by the way, that videogames strike me as having the greatest potential to make a distinctive contribution to the arts, in the way they draw audiences into their fictional worlds, reconnecting the fictional emotions with action."¹⁸

He elaborates by saying, “because videogames are interactive fictions, placing players as an epistemic and behavioral agent within a game world, the feelings that those players have can subsequently become an influential part of that fictional world, guiding their actions therein.”¹⁸ Later in the chapter, he proposes his theory on emotions in video games. He states, “Such emotional involvement and attribution is largely automatic and unconscious...emotion arises quite naturally out of an imagined engagement in a hypothetical scenario because of the naturalness of the connection between the imagination and emotion.”¹⁸ Throughout the chapter, he offers examples from different games, explaining how the game world and the story elements such as characters, events and objects (all of which he refers to as fictive props throughout the chapter) can create emotional responses in the players. However, he pays particular attention to a game called *BioShock*.

BioShock, a highly critical and commercial success and winner of several game of the year awards for 2007, is widely regarded in the video gaming community as one of the best narratives in modern games. Tavinor offers high praise to *BioShock* in this chapter by saying early on that, “*BioShock* is the masterpiece of recent gaming. What really impresses is its emotional depth, and the way its narrative...fits perfectly with its interactive gaming form. The game’s narrative is about freewill and morality.”¹⁸ Later in the chapter, he discusses the integration between player’s emotions and the game’s narrative. Tavinor offers this insight, “*BioShock* is the brilliant work it is because it so effectively integrates the emotions of its player into the narrative, which, because of the branching structure in *BioShock*, ultimately has an effect on the type of narrative – redemptive or bleak – that the game depicts.”¹⁸ Here he talks about how players’ moral choices throughout the game influence the eventual outcome, thus adding an extra depth to the immensity of the player’s actions. He presents this as an idea of the emotion inherent in the game. One such example provides that, “in *BioShock*, the Big Daddies are not frightening because they are a formal game obstacle, but because they are *hulking dangerous monsters*. The mere sound they make...is enough to make my ears prick up and for me to dread the following engagement.”¹⁸ He later explains why players might feel frightened or threatened in a video game, by describing that, “we simply can feel *threatened* by fictional characters: the Big Daddies in

BioShock are so threatening that the player must steel themselves before an encounter, and the actual encounters...are terrifying and frantic occasions. This is because, fictionally, the player-character and the Big Daddy *do* “exist” in the same ontological game world.”¹⁸ Essentially, Tavinor is suggesting that game players interact with characters that they recognize and accept as existing within the game world; therefore, emotions are created regarding these characters, worlds or events. It is what most people would term as “immersion” and contrasts with Ebert’s earlier problems concerning interactivity in games. Here, it becomes clear that interactivity can only heighten emotions and thoughts in the player. These discussions on emotions all serve as key points for promoting video games as a valid art form.

The last chapter of his book is simply titled “Videogames as Art.” In this chapter, Tavinor uses an art philosophy theory called the “cluster theory of art.”¹⁸ Introducing the theory, he explains that, “Cluster theories of art claim that art can be characterized by a set of conditions which an object might meet in a number of ways.”¹⁸ Essentially, an art cluster theory provides a set of criteria that an item must meet in order to be considered “art.” Citing two other philosophers – Dennis Dutton and Berys Gaut – Tavinor compares their cluster theories while adding his own explanations. Their cluster theories included some similar criteria, such as “direct pleasure, the display of skill or virtuosity, style novelty and creativity, criticism, representation, ‘special’ focus, expressive individuality, emotional saturation, intellectual challenge, traditions and institutions, and imaginative experience.”¹⁸ By doing this, Tavinor creates a basic measurement of how one can philosophically define an item as “art.” Tavinor continues his analysis by saying that, “though some artworks may lack one or more of these conditions, we could not imagine an artwork lacking a significant number of them. Furthermore, that a newly discovered object has the majority of these criteria would tempt us to see the object as an artwork.”¹⁸ Here, he is clearly referring to the fact that video games could be interpreted to fit a majority of these criteria as art.

Interestingly enough, Tavinor also discusses Dutton’s principles on human nature and examines how, and if, these ideas fit with art cluster theories. He explains that, “Dutton also takes a distinctly naturalized spin on the cluster theory of art, claiming that the conditions stem from the evolved psychological, behavioral, and social dispositions of our species, and hence are universal among all

human cultures.”¹⁸ He continues by stating how this concept still applies if cultures do not hold typical western concepts of art and finishes by claiming, “Dutton has a theory about just *why* this cluster exists: art is a part of our evolved and universal human nature.”¹⁸ This analysis of video games as part of a cluster theory allows them to be viewed as both a cross-cultural medium and a natural extension of human arts evolution. Tavinor supports this by suggesting that through these cross-cultural and naturalist ideas, one can better understand art in general.¹⁸ Tavinor finishes his book not by ruling out games as art but providing a completely new and progressive view on the issue.

Videogames – at least, some of them – show considerable overlap with the conditions that are taken by cluster theories of the arts to identify or define artworks. In their new digital setting, videogames achieve many of the goals and functions we associate with art, historically and cross-culturally. Yet, in each of these cases, the way that videogames meet the given criteria bears significant differences to previous forms of art...videogames have a property that is frequently not associated with art: competitive gameplay. Thus we may need to temper our conclusion about the art status of videogames and say that though they significantly align with art, videogames may count as a new and distinctive kind of art.¹⁸

Like others, he finds a problem with the competitive nature of some games and yet many games feature narratives designed for only one person to experience at a time. This creates a new issue of surrounding the ideas of inclusivity. One cannot exalt some examples from the medium, such as *BioShock*, and dismiss the other, “less artistic” examples, such as *Call of Duty*. For instance, even though many people did not find merit in *Transformers 2* or *Indiana Jones and the Crystal Skull*, one cannot say they are not part of an artistic medium. A few examples cannot discredit an entire medium. If so, then why is film still considered to be an art form when critics lambast many films for their lack of creativity or substance?

This is true for video games as well; one must consider the entire medium or none at all. Therefore, if *BioShock* or *Braid* are part of an artistic medium, so too should *Madden*; here is where the issue of competitive elements surface. In this inclusion of all games, one realizes that many do not fit many of the cluster theories of art. Because of this, Tavinor proposes that video games could make a new type of art, similar to the ways other mediums have changed how people view and understand art.

If views on art can change, so too can an art critic's views change. Roger Ebert wrote another blog post as a follow up to his previous argument. He says, "My error in the first place was to think I could make a convincing argument on purely theoretical grounds. What I was saying is that video games could not *in principle* be Art."⁹ He continues offering more concessions, stating, "That was a foolish position to take, particularly as it seemed to apply to the entire unseen future of games. This was pointed out to me maybe hundreds of times. How could I disagree? It is quite possible a game could someday be great Art."⁹ Eventually, he admits to the fact that in the last blog post he could not provide a definition of art for himself. It is here that he makes his largest, most revealing concession and finally dropped the conversation (at least for the time being).

One thing I brought from this experience was that I lacked a definition of Art... I required a definition that would exclude video games (those up to this point, anyway) on principle...I concluded without a definition that satisfied me. I had to be prepared to agree that gamers can have an experience that, for them, is Art. I don't know what they can learn about another human being that way, no matter how much they learn about Human Nature. I don't know if they can be inspired to transcend themselves. Perhaps they can. How can I say? I may be wrong. But if I'm not willing to play a video game to find that out, I should say so...I was a fool for mentioning video games in the first place.⁹

Perhaps in this concession Ebert also unwittingly provides a key to understanding the entire debate, one that can be observed just by reading and seeing how people talk about their video games and understanding where they are coming from.

The July 2010 issue of the seminal video game magazine *GameInformer* deals with the argument of video games as art. From an insider's perspective of the debate, the *GameInformer* authors say, "Are games art? This question has been asked hundreds of times, and no one agrees on an answer. Not everyone agrees on the definition of art – or even the definition of a game. Still, thinking about the ideas behind the games we play and what they mean is important."¹⁵ In the article, the staff named two games – amongst others – mentioned in this paper: *BioShock* and *Braid*. In describing these games, one gets the sense that these people care deeply about them and that these games have affected them somehow; an idea echoed in the other sources throughout this paper. Maybe it is more than formal definitions or hypothetical philosophies or even human nature. Perhaps it comes down to the individual – again an idea resonating amongst most of these sources; each person discussing their own personal experiences or emotions connected to their gaming experiences. For instance, the *GameInformer* writer adds, "*Braid* provides the gamer with multiple lenses through which to view the events, but you don't need to choose just one – works of art can hold a different meaning for each person who experiences them."¹³ Could it be that simple; that art is in the eye of the beholder?

In 2004, Lev Grossman – an author and writer for TIME Magazine – published an article in which he takes the same approach as Adams. He cites film great Steven Spielberg in saying, "I think the real indicator will be when somebody confesses that they cried at level 17."¹² At the end of his article, Grossman concludes, "Are *video games art*? Nobody knows yet, but the cool thing is, we're the ones who get to decide. Should *games* be like Hollywood? Or like interactive novels?"¹² Here Grossman raises an interesting point. He realizes that society is at the brink of changing trends and suggests that it is for the masses to decide whether video games should be considered art. Furthermore, he questions how the video game industry should model itself – whether they should follow the lead of Hollywood or trend more toward interactive novels. It is essential to understand that it is society that eventually determines what is

considered art and this helps to define society. The collective shift of individual perceptions on new media arts is what shapes views on art, and therefore defines and comes to represent a society and a people, as it is the natural extension of their views, beliefs and norms. Art, as an integral part of human existence, is just as important as other events and studies. Through examining the budding media art of videogames one witnesses the literal and metaphorical shift of art trends and how society has come to understand them.

More importantly, however, is understanding what art offers humanity. In essence, it offers a self-reflective glimpse into human nature. Returning to the original tenet, simply put, art is human. No other practice, field of study, or activity can speak to a person's very core such as art. It shows the happiest moments, the darkest secrets, the most hidden desires. It bears the weight of every human event, ideal, motive and emotion. Video games, if truly an art form, can offer experiences like no other artistic medium known to humankind. They meld together the visceral images of film, the swelling soundscapes of music, the in-depth narratives of literature, and the heart-pounding interactivity of performing, all while wielding a level of escapism and immersion only capable through video games.

People in the video game community, both within and outside the industry, are just realizing the full potential of video games as art and even those outside the video game community are taking notice. In the spring of 2012, the Smithsonian American Art Museum will have an entire exhibition devoted to video games.¹¹ If accepted as a valid art form, video games have more potential than any other artistic medium before them. With this greater potential, comes the possibility of a greater understanding and appreciation of the essence of human nature. Through video games, people can explore a failed Ayn Rand-inspired, objectivist "utopia." They can experiment with the basic, archetypal struggle between good and evil; construct their own unique worlds and visions; or examine what it means to lose everything and how far they would be willing to go to get it back. They can contemplate the revelations of self-discovery; marvel at the expanse of mythical civilizations; humble at the thought of saving the world; bask in the glory of tranquility; or escape to far-off lands. No other medium offers that, and as such, no other medium can speak to the concepts of human nature quite as well as video games.

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Six Feet Under: Unique Characters and Fantasy Structure

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Abstract: This paper analyzes HBO's 2001-2005 series *Six Feet Under*, focusing on two aspects of the show. First, it will examine the main characters within the Fisher family and how they are each unique to television. The paper will show how they defy conventional stereotypical norms of their age bracket and gender as normally depicted in present day media. Each character in the show is portrayed with flaws, desires, and questions about life that most television shows deny their typical characters. The second facet of the show that will be analyzed is its fantasy structure and use of magical realism. Through many filming and editing techniques, the show utilizes dreams, fantasies, breaks with reality, and other methods to examine the characters in a deeper way while allowing the audience to view the inner workings of the characters' minds. This technique allows viewer to see how each fantasy moment and sequence shapes and affects each character's behavior throughout the show.

A key element of quality television is innovation. Giving an audience something new and original enhances the experience of the show and its narrative arc. HBO's 2001-05 series *Six Feet Under* does this in two ways: 1.) by creating characters that do not conform to stereotypical norms on television; and 2.) by including fantasy elements in the grounding emotions of the show. Besides following a family that owns a funeral home, which is not typical television fare, the use of dead characters as influential beings throughout the series really separates the show from its competitors and allows the story to go anywhere as an irreverence of death is embraced and portrayed on screen.

One creative source is the show's executive producer Alan Ball, who created *True Blood* and wrote the Academy Award winning script for *American Beauty* in 1999. One reoccurring theme in his work is pain, darkness, and death. A main cause for this is his sister's death when he was thirteen and she was twenty-two years old. They got into a car accident and she died. He has said, "She died in front of me, she died all over me" (Lynch, 2004). Having something so heartbreaking and traumatic happen in his youth influenced him as a person and a writer. Another quality that Ball uses from his own life is David's

struggle with his homosexuality. Ball is gay and a gay rights activist, and he allows nuanced homosexual issues to surface through the character of David.

Something else that separates *Six Feet Under* from other shows is the risks it took throughout the series. The book *Television Studies: Key Concepts* discusses what makes many U.S. television shows popular. “Most TV formats are cheap to produce and import, are mainly based around light entertainment values, and have universal and international appeal that attracts a mass rather than minority audience” (Calvert, 2008). *Six Feet Under* does not meet that requirement for universal viewing. One main issue is the way it deals with the dead. Many times the corpses are nude, talked about crudely, dropped on the floor, or seen discussing inappropriate things with the living. This offended many religious groups who viewed the dead as sacred and funerals as solemn, respectful events that should not be used for entertainment by the culture (Lynch, 2004). The show chose to take that risk of alienating viewers and stirring up controversy to eliminate the myth that death is dignified.

The main formal element that separates the show from others is the fantasy element is embedded in the structure of the show. While the show is portraying real emotions and struggles, it uses magical realism to convey deeper meaning than the characters’ dialogues alone allow. As noted, the dead come to life to speak with the main characters. Throughout the series, the question is never answered whether or not the deceased are actually there; whether it is in the character’s mind; or whether the characters are projecting their own thoughts onto the corpses to deal with their own issues. The show never makes it clear. For example, in season one episode four “Familia,” when a dead gang member, Paco, talks to David about standing up for himself after being called a fag, it is difficult to tell whether David is hallucinating or using Paco to tell himself to be a stronger man. Paco said, “For twenty years, I lived like a man. When are you gonna start?” Phrases like these make it difficult to determine the precise nature of these sequences, but the viewer must simply accept them and reach their own conclusions.

After David was abducted and struggled with posttraumatic stress disorder and panic attacks in season four, his father, who died in the first episode, comforted him by saying that at least David is alive and because he is, he can do anything. Was this David’s father reappearing to comfort his son or was

David trying to console himself? Moments like this enhance the series because the viewer is privy to something that the other characters are not seeing. They get to know the characters more intimately than anyone else on the show because of the character's breaks with reality and their dreams. This is an example of mental subjectivity that many shows do not depict because it breaks the realistic elements of the show and makes the viewer cognizant that they are watching television (Mittell, 2010). Yet, *Six Feet Under* relishes in those moments and includes them in almost every episode.

The format of having a "Death of the Week" at the beginning of every episode is also an interesting choice for a show. After a few episodes, this can become trite and predictable; however, the show handles it very differently in each new iteration. It plays with viewer's expectations and starts every episode with the audience feeling uncomfortable and engaged. The book *Television and American Culture* stated that "*Six Feet Under* breaks intrinsic norms with its death of the week. Viewers begin to expect patterns and the show played with that through misdirection as to who would die. The viewer receives pleasure from these long form narratives" (Mittell, 2010). This anticipation would encourage the viewer to predict who would die, almost becoming an accomplice in the death that was certainly around the corner, and imagine how it would impact the Fisher's lives.

Another aspect that is unique to the show is its elaborate dream sequences and breaks with reality. At times, these sequences are shot normally, as if nothing strange is going on at all. However, as things become odder and more absurd, the scene will begin again by cutting back to the start of the shot, showing that the sequence only occurred in a character's mind and did not happen within the overarching narrative framework of the show's "reality." Other times, it is made very clear that the audience is watching a dream or fantasy in the character's mind that is not occurring in the world of the show. One extreme example of this is a dream sequence involving Nate's mortality at the beginning of season three, when he is not sure if he is alive or dead after brain surgery.

This episode was directed by Rodrigo Garcia, son of magical realist Mexican writer Gabriel Garcia Marquez. Garcia directed four episodes, each with memorable fantasy sequences. In the one mentioned above, Nate walks through different realities where he is dead; alive but mentally challenged;

alive and married to Brenda; alive and married to Lisa; a hillbilly, etc. He sees his father and screams at him to tell him if he is alive or dead. Ultimately, the viewer learns that Nate's heart stopped on the table for a period of time during surgery, but he revived and recovered. David Lavery has said, "If there has been a more extraordinary sequence in the history of television, I have not seen it. Garcia and Ball's collaboration here makes Cooper's dream from *Twin Peaks* seem tame by comparison" (Lavery, 2006). Although this was a complicated sequence, it utilizes the elements of magic realist storytelling by:

“[juxtaposing] the realistic and the fantastic, bizarre and skillful time shifts, convoluted and even labyrinthine narratives and plots, miscellaneous use of dreams, myths and fairy stories, expressionist and even surrealistic description, the elements of surprise or abrupt shock, the horrific and the inexplicable” (Lavery, 2006).

The lives of the Fishers all intertwine with these fantasy elements in the funeral home on a daily basis. Their interaction with the dead shape who they are and the choices that they make. Ball has said that:

“Six feet under refers not only to being buried as a dead body is buried, but to primal emotions and feelings running under the surface. When one is surrounded by death – to counterbalance that, there needs to be a certain intensity of experience, of needing to escape. It's Nate with his womanizing – it's Claire and her sexual experimentation – it's Brenda's sexual compulsiveness – it's David having sex with a male hooker in public – it's Ruth having several sexual affairs – it's the life force trying to push up through all of that suffering and grief and depression” (Ball quoted by Lynch, 2004).

Six Feet Under is also able to use dark or gallows humor throughout the show. Once death is made into a joke, anything else is fair game and up for ridicule. This allowed the show to go to extremely sinister places without receiving many negative sanctions. The show was also able to use humor to show

that death was not as dignified as people believed it was. By showing the deceased in a negative light - by having them say horrible and cruel things or act in compromising ways – they appear as regular and flawed as everyone else. The dead were never portrayed as angels or sacred idols.

In addition, by showing the capitalist aspect of the show through humorous moments, death was also seen as a business. For example, when the business was running out of money for repairs, the entire house had blood running through the drains because of a poor system that needed to be fixed. Moments like this remind the viewer that regardless of the solemnity and ceremony, it was the family's source of income and there was a bottom line to death and the funeral business. In the first episode, fake products for undertakers were advertised, such as "Living Splendor Embalming Fluid: Only Real Life is Better." This led "the majority of the viewers for these mock ads to undergo a profound awareness that they are seeing something that is not intended for them, that they are being let in on an inside joke, that the ads have missed their target audience" (Thompson, 2006). This discomfort inflicted on the viewer showed the harsh reality of the business in mock ads that used dark humor to satirize the process of restoring loved ones.

The show also refused to limit itself to typical television stereotypes that exist for each character and the group they represent. For example, Ruth, the mother, defied television conventions by wanting intimacy. Rarely are older women on TV shown as sexual beings, but only as the mother, the nagger, the cook. Ruth was all those things but also sought passion in her life and in her many affairs (Johnston, 2005). She had relationships with men her own age as opposed to seeking young men for her sexual needs. She preferred to develop meaningful connections with men while fulfilling the mature sexual desires that is ordinarily not depicted in the media. From the outside, she might appear as an oppressed housewife, but she rebels the most from that convention by her attempts at finding love and intimacy with men. While she is sexually liberated at an older age, she still cannot gain intimacy with her children, which bothers her throughout the series.

Furthermore, the gender relations on the show contradict what most television shows depict.

Some scholars argue that the women on the show are more sexually powerful and in control of their own identities than the men:

“The women are all depicted as sexually robust, independent feminist characters who negotiate well through the complex mores of post-industrial sexualities. The principal men, Nate and David, are depicted as mutually narcissistic, both having a problematically insecure, but dissimilar, masculinity” (Munt, 2006).

Depicting strong women, even with their flaws, show the power that women have been denied in the media. Also, by showing men who struggle with their individuality, the show renders them as confused and as normal as most people in society today.

Nate, the oldest son, struggles with returning home and inheriting half of the business that he ran away from in his youth. However, he has a gift to comfort people in their time of grieving that his brother does not have. He feels intimacy with some of the customers and it overwhelms him at times. During the show, he seeks religious answers from a Jewish Rabbi and a Quaker friend. Finding peace and meaning in his life are his ultimate quests. It is interesting to see a character struggle with these abstract concepts throughout the show as he evolved and aged. Also, he is killed off in season five, which is a risk that the show took by eliminating a main character who the audience identifies with. Yet, like most of the dead, they do not stay dead for long in this show.

David, the middle son, struggled the most with his homosexuality and issues with religion. He constantly questioned if God would love him because he was gay and ultimately could not follow in his father's footsteps as a deacon because of it (Chambers, 2003). Yet, David's rocky relationship with Keith, his long-term partner, follows a usual path of hardships, moving in together, and starting a family. Seeing these men deal with matters that are affecting gays today (such as using donors, surrogates, or adoption to have their own family) is refreshing and gives awareness to a growing issue (Munt, 2006).

“David’s first haunting comes from his father who appears over David’s shoulder to criticize the reconstructive work David is doing to prepare his body for viewing. Nathaniel points out to David that, ‘You never really had much aptitude for this stuff’ (Chambers, 2003). This encounter shows how David saw his father’s view of him as a funeral director, a man, and a son. David’s dead father mirrors many of David’s worries about being inferior. Yet, when Claire sees her father, he is smoking pot and is much more relaxed with her. This furthers the question of how they see their father and enhances the mystery of who he is, who he was, and who each child needs him to be.

Claire, the youngest daughter, deals with real issues that many shows for teenagers overlook. Today’s teens on television seem to only worry about partying, looking good, and who they are dating. Claire really searches for the meaning of art and life throughout the series, pursuing art school to enhance her life. She is very skeptical of normal conventions, such as the SATs and college and this manifests itself in anger, sex, and drug use. At one time, she took portraits of the deceased in the funeral home for a collection, which disgusted and bothered her family. This shows the beauty that Claire desperately wants to find in all the death around her. The last sequence of the final show revolves around her leaving home and outliving her family, showing the way they each die. This sequence is one of the best television endings in history and provided a wonderful sense of closure to the series.

Six Feet Under broke many typical television conventions, such as its use of magic realism in the structure and breaking character stereotypes. The “Death of the Week” began each show with anticipation and engaged the viewer in the imminent death that they expected. There was never an episode where death, so to speak, was not a main character. The show portrayed death as ugly and cruel; and yet as a business, it was seen as typical and routine for the Fishers. Instead of it always being a dignified affair, funerals and memorials were at times portrayed as parties with porn stars or bikers drinking and dancing. In addition, the fantasy elements and magic realism enhance the show for the viewer and provide deeper insight into the characters’ minds and motivations. This draws the viewer deeper into the world of the show. Furthermore, by breaking stereotypical norms in their characters, viewers are able to see real emotions in characters whose problems accurately reflect those that we face in the world today. The

groundbreaking nature and structure of the show allowed it to touch on many aspects of the human condition, including life, death, growth, reality, intimacy, and dreams. These are the issues we all deal with daily, the issues that restore us to life.

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COLLEGE STUDENTS AND ANXIETY

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Abstract: Although past studies have shown that college students experience anxiety (Purdon, Antony, Monteiro, & Swinson, 2001)⁷, minimal research addresses how anxiety affects groups by age, academic year, race, and gender represented at a college, or what type of anxiety is most experienced by these different groups. Additionally, research is limited in assessing outside factors affecting a college student's anxiety level such as living arrangements, number of credits taken in a semester, or a diagnosed anxiety disorder and corresponding treatment. The present study addressed this research gap by surveying 86 students at Cabrini College, a small private Catholic college in Radnor, Pennsylvania. The survey focused on the overall anxiety of the participants, as well as symptoms present in the two weeks prior to surveying, specific types of anxiety, and some common outside factors that may affect the student participant's overall reported level of anxiety. Results suggest that although there is not a significant difference between ages or academic years in anxiety as measured by the Zung Self Rating Anxiety Scale (Zung, 1971)¹², there are numerous differences in college students and anxiety. These differences include gender difference, and self-reported anxiety relating to age and academic year. Additionally, results showed a correlation between anxiety treatment and lowered symptoms. These findings suggest that additional research can focus on anxiety treatment success in college students, as well as on more specific anxieties, what contributes to them, and a further understanding of the effect this has on college students.

Anxiety disorders affect approximately 19 million American adults annually (Strine, Chapman, Kobau, & Balluz, 2005)⁹. In addition to adults, young adults are also affected. Most college students report that they sometimes experience social anxiety (Purdon, Antony, Monteiro, & Swinson, 2001)⁷. The prevalence of anxiety experienced by college students, however, is greatly unexamined in large studies. There are even fewer studies that examine anxiety experienced by college students in different academic years, or studies that look at gender differences and anxiety inside a college population. Within the small number of studies that do research the four academic years individually (freshman, sophomore, junior, and senior) most attention is paid to freshman and senior year, with less focus given to sophomore and junior year students.

Studies disagree on the level of anxiety that college students experience (Purdon, Antony, Monteiro, & Swinson, 2001)⁷. Ratanasiripong, Sverduk, Hayashino & Prince (2005)⁸ believe that there is an increasing prevalence of stress and anxiety on college campuses. However, an additional study, interested in the relationship between drinking habits of college students and their social anxiety, published conflicting results (Ham & Hope, 2006)⁶. The researchers found that while drinking habits of participants between the ages of 18 and 20 are significantly higher in college students than non college students of the same age range, anxiety levels between the two groups are not significantly different. This study did not, however, examine the differing causes of anxiety for the two groups, such as papers and exams versus bills and work.

Purdon, Antony, Monteiro, & Swinson (2001)⁷ were interested in understanding the frequency in which college students experience anxiety, and concluded that an individual's perception of anxiety affects social interactions as much as that individual actually experiencing anxiety themselves. Eighty-one students enrolled in undergraduate classes completed a self report survey that inquired about social anxiety, social desirability, and the level to which individual impressions changed when another person, the person being judged, appeared to be anxious. The research team reported that generally participants

who reported higher levels of anxiety also reported viewing other college students with visible symptoms of anxiety to be less attractive and have a lower sense of character, when compared to peers who did not appear anxious.

Collins (2010)³ predicted that anxiety levels of college students would be similar to those of the general public. College students, 400 in total, were administered a survey inquiring about specific phobias and generalized anxiety. Results from these surveys were compared to data for the general public. Findings from the study indicated that the anxiety of college students and the general public were not statistically different, though it is not clear how or by whom the data for the general public was collected, or what age range the general public represented.

Anxiety can be broken down into many different types (Gordenstein & Comer, 2001)⁵. One specific type of anxiety focused on when researching college students and anxiety is test taking anxiety. Test taking anxiety can be defined as “the set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation” (Zeidner, 1998, p. 17)¹¹. Before Blanding and colleagues conducted their study, few previous bodies of research had explored test taking anxiety and corresponding grade point average (GPA) in undergraduate students and none before had done this research with graduate student participants (Blanding, et. al, 2005)². In total, 5,551 graduate and undergraduate students from large, public college and masters programs in New Jersey, Pennsylvania, and Illinois participated by answering questionnaires that surveyed age, gender, GPA, and undergraduate or graduate student status. Following, they were given a test taking anxiety inventory. Females reported significantly higher test taking anxiety than males, and there was a negative correlation between test taking anxiety and GPA in both male and female participants.

Additional studies narrow down the study of college students and anxiety into grade levels. As previously stated, freshman and seniors have been the most focused on section of the college student

population. Freshman college students, or ‘first-years’ receive attention because for many of them, college is the first time leaving and living away from home for an extended period of time. In 1978, Ainsworth, Blchar, Waters, & Wall¹ demonstrated that leaving home can trigger attachment insecurity, which can sometimes manifest itself as separation anxiety. A study was motivated by this hypothesis and additionally wanted to explore what techniques could help first year college students who were struggling with anxiety (Croker, Canevello, Flynn, & Breines, 2010)³. Their study, involving sets of freshman or ‘first -year’ roommates as participants, 199 students total, found that interpersonal goals are a helpful technique to help students deal with anxiety. These goals could be along the lines of mapping out when papers and projects are due and making a plan to hand them in on time or setting a goal to meet new people or try out new on campus activities. Researchers found this can help reduce different types of anxiety, not just separation anxiety and can help college students of all years, not just freshman or ‘first – years.’

On the other side of the college experience spectrum, seniors, or ‘fourth-years’ have ideally had enough time spent in college to have adjusted to living away from home as well as their work load. A study involving 191 students in their fourth year of college (senior year) participated in a study that inquired about career search, self efficacy, and psychological distress through the use of a self report survey (Yang, 2007)⁹. The study found a negative correlational relationship between a minimal amount of career search and increased psychological distress. The researcher believed this implied that those who did not look into their future had higher distress and anxiety because of this lack of future career searching. An alternative view might be that those who have higher levels of distress and anxiety may not look into their future career choices because of a lack of self-confidence in their future. More research would have to be conducted to investigate this alternative explanation and to determine possible affects this may have on students.

In almost every aspect or viewpoint of the college and anxiety topic, there is more room for research and further understanding. A better understanding of the relationship between the two can benefit both college students and professionals working with them.

Method

Participants

Participants included 86 students at Cabrini College (30 male, 55 female and 1 not specified). The age range was 18 – 22 years old ($M= 20.03$, $SD= 1.24$). The most represented academic year was freshman / 1st year (33%), followed by sophomores / 2nd year (24%), juniors / 3rd year (23%) and seniors / 4th year (18%). Most participants lived on campus (73%), 22% commuted from home, and 5% commuted from off campus housing. The majority of participants were white (84%). Other races represented were African-American (8%) Asian or Pacific Islander (6%) or ‘other or unknown’ (2%) as reported by the participant. Reported overall grade point average or GPA of participants ranged from 1.6 to 4.0. The most common GPA range was 3.1 – 3.5 (32%) followed by 2.6 – 3.0 and 3.6 – 4.0 both 25%. Additionally, 15% of participants’ GPA fell into the range of 2.1 – 2.5 and 3% had GPAs between 2.0 and 1.6.

Materials

A survey inquiring about age, gender, race, GPA, residential status, academic year, number of college credits currently being taken was utilized. The survey also asked about social anxiety, test taking anxiety, anxiety about one’s future, past anxiety disorder diagnosis, treatment, and perceived anxiety. The survey also included an adaption of the Zung Self Rating Anxiety Scale (Zung, 1971), which asks 20 questions in a Likert scale, allowing the participant to answer ‘not at all’ ‘a little of the time,’ ‘some of the time,’ ‘good part of the time’ or ‘most of the time’ when asked if they have felt a certain way in the last 2 weeks. These answers were added together to calculate a cumulative score, falling into different ranges of anxiety. These ranges were ‘normal range,’ ‘mild to moderate anxiety,’ ‘marked to severe anxiety,’ and ‘extreme anxiety level.’

Procedure

Participants were surveyed during Psychology, Seminar, and Biology classes at Cabrini College, after receiving professor permission. These classes could have counted as a major requirement, minor requirement, elective, or graduation requirement for students. The seminar classes mostly consisted of underclassman, and the Psychology and Biology classes mostly consisted of upperclassman. This was done to gain access to all ages and academic years at Cabrini College.

Participation from students was also acquired through solicitation in the Cabrini College cafeteria, and upper and lower classman on campus dormitories.

In both scenarios, after assuring participants about confidentiality and anonymity, surveys and consent forms were administered. Participants first read and signed their consent form, and handed them in. Surveys were completed in 5 – 6 minutes with questions from participants welcomed. Surveys were anonymously collected and kept separate from consent forms so no signatures and surveys could be matched up. All data was coded and entered into SPSS by a single coder, as well as password protected to ensure the privacy of the participants.

Results

ANOVA

A one-way ANOVA was conducted to evaluate the relationship between academic year in college and anxiety score on the Zung Self Rating Anxiety Scale. The independent variable consisted of 4 levels: freshman year, sophomore year, junior year, and senior year. The results were not significant, $F(3, 82) = 2.20, p=0.10$.

Chi Square

A one sample Chi-Square test was conducted to determine how students at Cabrini College answered a question about their past anxiety diagnosis. Participants either answered ‘yes’ or ‘no’ to having a diagnosed anxiety disorder. The majority said no (85%) and 15% said yes. The results were significant, $X^2(1, N=86)=41.86, p=.00$. (See Figure 1.)

As a follow up, an additional Chi-Square was conducted to determine how Cabrini College students with a diagnosed anxiety disorder treated their disorder. Only participants with a diagnosed anxiety disorder answered this question; the rest of the sample was prompted to skip the question. Participants either answered ‘yes’ or ‘no’ to receiving treatment. The results were significant, $X^2(2, N=11)=113.75, p=.00$. (See figure 2.)

Correlation

Pearson’s r was computed for gender, age, academic year, GPA, on or off campus residential status, race, social anxiety, test taking anxiety, anxiety about the future, Zung Self Rating Anxiety Scale score, past anxiety diagnosis, perceived experience, and current course load among gender, age, academic year, GPA, on or off campus residential status, race, social anxiety, test taking anxiety, anxiety about the future, Zung Self Rating Anxiety Scale score, past anxiety diagnosis, perceived experience, and current course load. Gender was significantly positively correlated at the 0.05 level with number of college credits being taken ($r=.25, p=.02$). Age was significantly positively correlated at the 0.05 level with academic year ($r=.87, p=.00$) and future worry ($r=.27, p=.01$). Academic year was significantly positively correlated at the 0.05 level with residential status ($r=.22, p=.04$) and anxiety about the future ($r=.26, p=.01$). Academic year was also significantly positively correlated at the 0.01 level with age ($r=.87, p=.01$). GPA was significantly negatively correlated at the 0.05 level with test taking anxiety ($r=.23, p=.04$) and perceived anxiety experience ($r=.26, p=.02$). Social anxiety was significantly positively correlated at the 0.01 level with test taking anxiety ($r=.31, p=.01$) and Zung Self Rating Anxiety Scale score ($r=.42, p=.00$). Additionally, social anxiety was significantly negatively correlated at

the 0.01 level with anxiety diagnosis ($r=-.36, p=.01$), significantly negatively correlated with perceived anxiety experience ($r=-.25, p=.02$), and significantly positively correlated at the 0.05 level with anxiety disorder treatment. Test taking anxiety is significantly positively correlated at the 0.01 level with anxiety about the future ($r=.37, p=.01$), Zung Self Rating Anxiety Scale score ($r=.32, p=.01$), and social anxiety ($r=.31, p=.01$) Test taking anxiety is also significantly negatively correlated at the 0.05 level with GPA ($r=-.23, p=.04$). Anxiety about the future was significantly positively correlated with Zung Self Rating Anxiety Scale score at the 0.01 level ($r=.31, p=.01$) and significantly positively correlated at the 0.05 level with number of college credits being taken ($r=.23, p=.04$). An anxiety disorder diagnosis was significantly negatively correlated with Zung Self Rating Anxiety Scale score ($r=.29, p=.01$) and disorder treatment ($r=.22, p=.01$) both at the 0.01 level. Perceived anxiety experience was significantly negatively correlated with Zung Self Rating Anxiety Scale at the 0.01 level ($r=.34, p=.01$), treatment ($r=.32, p=.01$) and negatively significantly correlated with number of credits being taken ($r=-.21, p=.05$). Effect sizes ranged from moderately small to large.

Discussion

The above correlations explain more about the population surveyed. Gender was positively correlated with number of college credits being taken; meaning the girls in the population on average took more credits than the boys. Age was positively correlated with academic year, which makes sense; one would expect the freshman to be the youngest, and seniors to be the oldest. In addition to being older, the later academic years and older ages also worried about their future more. This could be explained by the fact that they are closer to graduation, and closer to the future some of them are anxious about. Academic year was positively correlated with residential status; as students get older they are more likely to move into off campus housing.

The results also provided data on how anxiety affects students. GPA was negatively correlated with test taking anxiety and perceived anxiety experience. This means that students with lower test taking

anxiety had higher GPAs, and students with higher test taking anxiety had lower GPAs. The same pattern fit with perceived anxiety. Students who said they felt they experienced more anxiety than most had lower GPAs, and students who reported not believing they experienced more anxiety than most had higher GPAs. Social anxiety correlated with test taking anxiety, indicating students who experience anxiety in social setting are also more likely to have anxiety when taking a test. These students also had higher Zung scores. Social anxiety was negatively correlated with an anxiety diagnosis and perceived anxiety, showing that when diagnoses increase, social anxiety and perception compared to others decreases. This is most likely because of the positive correlation between diagnosis and treatment.

The results show that diagnosis and treatment correlate. Test taking anxiety is correlated with more anxiety about the future, higher Zung Self Rating Anxiety Scale score, and a higher level of social anxiety ($r=.31, p=.01$) Those with anxiety about the future have, on average, higher Zung Self Rating Anxiety Scale score and take more college credits in a semester. An anxiety disorder diagnosis was negatively correlated with Zung Self Rating Anxiety Scale. This means that those with an anxiety disorder had lower Zung scores, indicating steps had likely been taken to lower their anxiety after the diagnosis. Perceived anxiety experience was negatively correlated with Zung Self Rating Anxiety Scale, treatment and correlated with number of credits being taken.

What is just as interesting is what was not correlated. A significant correlation between gender and GPA or anxiety diagnosis was not present. There were also no gender differences found in social anxiety, test taking anxiety, or anxiety about the future.

Results from the one-way ANOVA were not significant. This means that the 4 academic years in college do not significantly differ from one another when it comes to scores on the Zung Self Rating Anxiety Scale. Future research studies could look further into different types of anxiety, and see where the differences do lie. The above correlations indicate that anxiety about the future increases throughout

the college years; this could be a good place for additional research to investigate how that affects college life in the social and academic settings.

Results from the Chi-Square analysis investigating Cabrini College students and diagnosed anxiety disorders were significant. Within the sample, 15% had an anxiety diagnosis and 85% did not. This could either be a reflection of 85% of the sample not having an anxiety disorder, or that some students with an anxiety disorders have thus far not been diagnosed.

Results from the Chi-Square analysis investigating treatment of diagnosed anxiety disorders in Cabrini College students were also significant. Of students with a diagnosed anxiety disorder, 90% received treatment and 10% did not. The survey did not ask participants to specify what type of treatment they received, or for how long they were in treatment.

It was predicted that there would be a significant difference between ages and academic years in anxiety as measured by the Zung Self Rating Anxiety Scale, and although that is not what was shown in this study, there is now a greater understanding of the numerous differences in college students and anxiety. Gender differences, as well as age and academic year differences in more specific anxiety such as anxiety about the future has been noted. Additionally, findings suggest a correlation between anxiety treatment and lowered symptoms. These findings suggest that additional research should give closer attention to anxiety treatment and the success it can have with college students. Further studies should inquire about the anxiety treatments that some participants could have used, such as counseling and medication, or a combination of the two. This would also lead to a better understanding of treating college students with anxiety disorders. Furthermore, more specific anxieties as manifested in college students need to be better understood as well as what contributes to them and the effect they may possibly have on a student and their experience in college.

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“Análisis del poema ‘A Roosevelt’ por Rubén Darío”

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Abstract: At a time of great upheaval and change in Latin America, the modernist poet Rubén Darío ascribes to himself the role of prophet. In his poem “A Roosevelt,” he expresses the tension between the two Americas as a result of the political rise of the United States. My analysis shows how Darío uses the actions and personality traits of President Roosevelt to describe some characteristics of the new, and powerful, United States. By comparing and contrasting the two American continents, the poem serves as an affirmation of the rich cultural heritage and resiliency of the Latin American people. The paper was presented at Cabrini College’s Undergraduate Research Symposium in April 2011.

Rubén Darío es el escritor que define el modernismo hispanoamericano. Este período es conocido por la incorporación de elementos de otras expresiones artísticas, el uso de imágenes, la atención al ritmo y sonido, y la adaptación de otras formas propias del parnasianismo y el simbolismo. También este movimiento es el primero americano que no llega a ser solamente una extensión de los movimientos europeos. Un poema que representa el comienzo de un poeta comprometido es “A Roosevelt”. En este poema, Darío usa las técnicas del simbolismo e imágenes diferentes para explorar temas políticos haciendo una comparación entre Roosevelt y los Estados Unidos y figuras de la historia y la Biblia. Este período marca un cambio en la obra de Darío. La manera en que usa la poesía evoluciona y se deja entrever el comienzo de una voz poética enfocada en el mensaje político. Al mismo tiempo no solamente busca su “voz” como latinoamericano sino que quiere dar voz a todo el continente. Darío fue un poeta muy singular. Las ideas que presenta en este poema son muy importantes dado que representa una visión de la historia que ahora podemos confirmar. Por eso la voz poética se compara con un profeta de la Biblia. Con este poema, Darío no se propone escribir algo bello o mágico. El poeta prefiere usar la escritura para cambiar el mundo. Este análisis propone demostrar el uso de la voz profética en el poema y las imágenes que Darío crea para armar su texto poético.

En principio es importante analizar la estructura del poema, la cual puede ser dividida en tres partes. En la primera parte, Darío presenta a Roosevelt como un líder fuerte y menciona sus atributos positivos. La segunda parte incluye las comparaciones de Roosevelt con otros líderes de la historia. En la tercera parte, Darío cambia su enfoque y describe los valores americanos y la fortaleza. Este tipo de estructura es muy importante para configurar la voz profética. En el comienzo del poema, Darío presenta a Roosevelt como un buen cazador y un líder fuerte de su país. También la voz poética afirma que muchas personas admiran a Roosevelt porque tenía demasiada energía. En ningún momento parece perder su energía. Esta parte termina con una sola palabra, un enfático “no”. Esto cambia el flujo del poema que va de un énfasis positivo a uno negativo. En el resto del poema, Roosevelt es comparado a cualidades negativas. Para empezar, él es un líder que cree más sobre su país de lo que es verdad. Roosevelt tiene demasiado orgullo, lo que es bueno en un líder o un país, pero esto afecta sus relaciones con el resto del mundo. El vocablo “no” en el verso es importante para realzar la voz profética. Este vocablo significa que el mundo no está de acuerdo con Roosevelt. La voz poética anuncia que él sabe algo que nadie sabe y hay ciertos aspectos de Roosevelt que han de causar problemas para los Estados Unidos y el mundo del futuro.

Darío muestra esto en la segunda parte de la estructura del poema donde empieza a hacer comparaciones con otras figuras de la historia. Estas comparaciones son una parte integral de la voz poética porque sirven para resaltar las faltas de Roosevelt. También, todos los personajes históricos mencionados son personas fuertes e importantes, pero que últimamente fracasaron y murieron. En el poema, Darío compara a Roosevelt con Nemrod, Alejandro y Nabucodonosor. Estos tres también fueron líderes políticos de sus países o imperios. Pero todos fueron líderes que controlaron personas que no eran del mismo grupo y que tenían creencias diferentes a las personas de su imperio. Darío hace conexiones a estos líderes y fuerzas históricas para crear una imagen del futuro. Las personalidades a las que hace referencia no tienen éxito en el fin de sus vidas, o tienen un fin trágico.

En la historia bíblica, Nemrod, como Roosevelt, fue un cazador valiente y un líder fuerte. Él fue el rey que tuvo conexión con la torre de Babilonia. En la Biblia, la torre es la causa para la aparición de

todas las lenguas del mundo. La gente creía que si alcanzaban al cielo podrían ser iguales a Dios. Dios no pudo permitir esta creencia y confundió a la gente creando otras lenguas y, al no entenderse, debieron separarse. Este rey fue el descendiente de Noah y, como Roosevelt, tenía un linaje muy importante. Entonces, como Nemrod, Roosevelt representa alguien que trata de hacer algo que no es bueno ni a los ojos de Dios ni para la gente del mundo. Por su parte, Alejandro fue el líder del Imperio Griego. El imperio griego es una de las razones por las que hoy existe el mundo moderno. Alejandro ejerció su poder en gran parte de Europa y el norte de África. Durante su tiempo hubo un gran crecimiento en la literatura y el conocimiento mundial. Otra figura histórica que se menciona es Nabucodonosor, un líder bíblico y rey del Imperio Babilónico.

La conexión que se establece en el poema entre estos líderes es que ellos empezaron a tener problemas cuando se pusieron celosos y quisieron demasiadas tierras. Así explica Darío cómo, a partir de un punto, no hay posibilidad para que algunas personas puedan controlar una porción entera de la población del continente como trataron de hacer estos líderes. En el poema, Roosevelt tiene los mismos problemas que Alejandro y Nabucodonosor. Todos ellos trataron de controlar gente y no supieron respetar sus costumbres. Roosevelt no trata de respetar las costumbres de la gente de Latinoamérica. Para Darío ésta había sido la perdición de los dos líderes y si no cambiaba sería también la perdición de Roosevelt.

En el verso cinco, Darío también hace una conexión entre Roosevelt y la descripción que Víctor Hugo hace de Ulises Grant, presidente de los Estados Unidos. En sus escritos, Hugo le dice a Grant: “Las estrellas son vuestras” (Méndez Faith 118). Víctor había expresado lo mismo sobre Grant que Darío expresaba sobre Roosevelt. Ellos creían que Estados Unidos había sido elegido por las estrellas. Pero ese no es el caso, y es el papel de los escritores advertir esto a los políticos. En su papel de líder después de la Guerra Civil, Grant representa la esperanza de la gente para un cambio y al mismo tiempo para mejorar a su país. Pero este líder militar no lo pudo lograr. Con Roosevelt fue lo mismo. Darío propone en su poema que las acciones de Roosevelt no mejoran la vida de su gente porque no se hacen de manera correcta.

En el poema, Darío hace referencia a dos cultos. Estos dos cultos son los valores que los países quieren para su futuro. Darío dice que los Estados Unidos son muy ricos y sirven “el culto de Hércules” y “el culto de Mammón”. Aquellos que siguen el “culto de Hércules” honran a Hércules y lo que él representa. Esto significa que la gente favorece la fortaleza más que la inteligencia. El “culto de Mammón” es para la gente que honran el dinero y las cosas materiales. Estos cultos representan la perspectiva de Roosevelt que honra la fuerza y el dinero. Darío sugiere que la cultura estadounidense no honra la mente o la inteligencia, sino que prefiere la fortaleza física y el bienestar material.

En la última parte del poema, Darío se refiere a la otra América. La voz poética se identifica con esta América al usar la palabra “nuestra”. Esta parte del poema elabora temas más positivos. El poeta-profeta hace una advertencia a los Estados Unidos. El poeta recuerda que los países de Latinoamérica quieren controlar su propio futuro y no es necesario para los Estados Unidos tratar de cambiar el sur del continente. Las comparaciones en esta parte del poema son diferentes. El poeta habla sobre los héroes de la “América española”. Estas no son comparaciones de gente como Roosevelt pero personas con las que él tiene muchas diferencias. Entre esas personalidades está el navegante Cristóbal Colón y líderes indígenas como Moctezuma, Guatemoc, y Netzqualcoyotl. Estas figuras históricas no lograron victoria pero murieron por una causa. De esta manera se pregunta Darío si Roosevelt, en las mismas circunstancias, sería capaz de morir por su país y su gente.

Darío presenta muchas diferencias entre la América del Norte y la América hispana. En todos los versos el poeta habla sobre la religión, los valores y la fe en su cultura. La América del Norte es un país de historia y cultura nueva. La América Hispana tiene el pasado de los indígenas y las tradiciones españolas. Esto crea un respeto por el pasado y la cultura. En los Estados Unidos no hay esa tendencia a valorar el pasado y la cultura. Estas actividades reflejan las diferencias entre las dos Américas. Como en muchos poemas modernistas, en “A Roosevelt” no hay mucha repetición. La mención de Dios o Jesús es una de las únicas repeticiones en este poema. También hay referencias bíblicas y religiosas en muchas partes del poema. Darío dice que Roosevelt necesita conocer a Dios porque es evidente que no lo conoce

latinoamericano. Darío quiere mostrar cómo las enseñanzas cristianas pueden cambiar la manera de actuar en el escenario político.

Finalmente Darío llegó a la conclusión que Roosevelt necesitaba cambiar mucho en sus relaciones políticas para tener más amistades con el resto de mundo. También es muy evidente que no tiene una opinión muy buena de Roosevelt. El describe a Latinoamérica como “Hay mil cachorros sueltos del León Español./ Se necesitaría, Roosevelt, ser Dios mismo/ el Riflero terrible y el fuerte Cazador/ para poder tenernos en vuestras férreas garras” (Méndez Faith 118). En esta cita se ven las imágenes del poema. En el verso seis, el poeta habla sobre la sangre española que es parte de Hispanoamérica. Él dice que una persona no los puede destruir a ellos, solamente Dios tendría la fuerza para hacer esto. También se refiere a “vuestras férreas garras”, que es una metáfora para representar la fortaleza de los Estados Unidos. Al mismo tiempo, las garras pertenecen a los animales para destruir o capturar su presa. Con esto se supone que los Estados Unidos se dedica a la caza para controlar a otros países.

Darío muestra a la cultura latinoamericana con la fuerza para sobrevivir las presiones de Roosevelt y los Estados Unidos. El poeta sabe que el continente no va a sucumbir a la presión de los Estados Unidos. La América española es un lugar con amor y vida, y cuya sociedad ha tenido una historia dura. Es un continente que ha sobrevivido muchas dificultades y nada ha puesto en peligro a su cultura. De acuerdo al poeta, la sangre de ellos es muy fuerte y puede superar otros desafíos. Los Estados Unidos no representan una amenaza porque los latinoamericanos son una gente con compasión y lo que les falta no es importante porque ellos tienen una comunidad fuerte para compartir su pasado y su futuro. En conclusión, al adoptar la voz de un profeta, Darío se vale de la escritura del poema para representar el encuentro tenso de las dos Américas y para resaltar sus diferencias. Darío pone mucho énfasis en su habilidad para predecir el futuro. Sus referencias a la Biblia sirven para resaltar su habilidad de “mirar el presente y proyectar hacia el futuro”. Las predicciones de Darío se han concretado en la realidad. Los Estados Unidos están perdiendo su poder en el mundo lentamente. No hay un futuro claro para los países del mundo.

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False Memory: Age, Gender and Recall Abilities

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Abstract: The current study evaluates the connections of age and gender to the creation of false memories. It was hypothesized that significant results would be found between age, gender and the number of created false memories when subject related and non-subject related distracter words are used. The sample consisted of 45 participants who were separated into two age groups: younger adults (18-29 years) and older adults (30 years and older). Each participant took a test by studying 6 word lists and recalling words from each list. Significant differences were found in the number of recalled subject-related words in the older adult group when compared to the younger adult group, as well as the number of correctly non-subject recalled words. Correlations were also found between age and false memories as well as correctly recalled words. Gender had no significant effect. These findings suggest that when evaluating memory and age, one must consider how different variables may favor one age group over another.

Introduction

The dynamics of memory are extremely influential in our ability to think and understand the knowledge we have acquired. Remembering past events, our ability to memorize facts, and our recall of thoughts and ideas are obviously things we do daily. We need these common thinking skills for the most basic of tasks and functions, but just because we use them often doesn't guarantee the strength of our memory capabilities. We may not remember information correctly or we may remember something that didn't actually happen. These memories of events that did not happen are called false memories. Some false memories can be harmless but some can inhibit our recall at important times. Studies show that false memories occur more frequently in childhood, beginning to dissipate between early childhood and young adulthood (Brainerd, Reyna & Ceci, 2008). Although this has been generally accepted, there are other factors that have not been fully explored in the comparison of age and false memory. Because of this, newer studies are showing contradicting results.

Brainerd, Reyna and Ceci (2008) explain that although the common pattern has been that as we age, memory distortion declines, they state such claims may not be as strong as once perceived. They give details about how questions involving false memory in children arose primarily because of the outlandish and often-impossible testimonies children gave in court testimonies as witness to different crimes.

Although for many years this has been accepted in most literature, newer theories are providing contradictions to this theory.

Anaitasi & Rhodes (2008) also explore the reversals in memory between different older and younger age groups. They hypothesized that the lists used to test children and adults on recall should be prioritized and used both child-oriented and adult-oriented themes and words, as this may contribute to the connection between age and memory. Their study consisted of 64 participants (30 children aged 5-8, and 24 college students aged 18-23) that were each given 12 tests (six adult-oriented and six child-oriented) in a specific order to test their hypothesis. Results showed that the negative correlation between age and false memory was consistent in both the adult and child-normed lists. These findings concurred with most other previous studies about the connections to age and recollection.

Another study conducted by Ghetti, Qin & Goodman (2002) explored the differences between memorization with and without distinctive information to help. Using some of the same tests as Anaitasi & Rhodes (2008) (the Deese/Roediger-McDermott paradigm or DRM, a memory illusion test where participants are expected to recall a related word that was not on the list of words given to them), they gave 48 children separated into two age groups (a 5 year old group, mean age = 64.79 months; a 7 year old age group, mean age = 88.29 months) and 24 college undergraduates 15 lists. These lists consisted of seven associated words that accommodated critical lures in the vocabulary of young children. Half of the participants studied words alone, and half studied words accompanied by pictures. Although the results still showed that children did have a higher frequency of false memories, results also showed that in both groups all participants had better recall with help from distinctive information. This information allows us to better understand how recollection can be affected by outside stimuli.

In a test conducted on older (ages 61-83) and younger (ages 18-28) adults, Piguet, Connally, Krendl, Huot & Cokin (2008) used valence and its effect on emotional memory and memory distortion. The authors tested 72 healthy people (36 in each age group). Each participant was given 18 lists to study of neutral words that were orthographically related to a lure. The lures were either negative, neutral, or positive in valence. A recognition task followed the study phase of the experiment. The results concluded

that a positive valence could affect the confidence in false recollections in older adults. The younger adults however, had fewer responses to emotional lures (both positive & negative) than they did to neutral lures. Although their hypothesis that older adults would give more false alarms than younger adults, overall this was not proven, although they did discover a connection between age and emotions and their effect on false alarms.

These articles concur that age affects false memory in some way, but obviously other factors also contribute to this same effect. Zoellner, Foa, Brigidi & Przeworski, (2000) discuss the effect of PTSD on creating false memory. Three groups participated: a traumatized group with a diagnosis of PTSD, a traumatized group without a diagnosis of PTSD, and a non-traumatized control group. Each group was asked to listen to a list of related words and a non-pre-tested word. They were given free recall as well as recognition testing. The results showed that both the PTSD traumatized group and the non-PTSD traumatized group produced more false recollections than the control group. Although the article does not touch on age, its data still has bearing on the emotional connection to false recall and this idea can be applied to age (as was done in the previously discussed study).

New research proposes that other factors such emotions, trauma, specific lures and contexts can have an important impact on memory and should always be considered when assessing the memory function across people of different age groups. Since memory is such a broad subject the issues that affect it are vast and varied. In the current research project, the evaluation of false memory was conducted in a similar fashion to other previously discussed experiments. With the use of distraction words that may cause the creation of false memories this study evaluated if older adults will be more than or just as susceptible to having false recollections as younger adults in a test using subject related and non-subject related words.

Methods

Sample

A total of 45 people participated in the experiment. These 45 were separated in two age groups: the younger adult group (18-29 years) consisted of 24 participants and the older adult group (30 years and older) consisted of 21 participants. Gender was also considered to see if any differences in false memory appeared between males ($N=17$) and females ($N=28$). This sample was collected using haphazard and snowball methods of collecting. Most participants were associated with the Cabrini College student body, faculty and staff.

Materials & Procedure

An experiment was conducted using a Cognitive Laboratory software program (Thomas Learning Inc., 2008) The participants were asked to take a test to evaluate their recall abilities. They were asked to fill out a consent form explaining the procedure. They were asked to submit their age and gender, but not their name. All test results were kept anonymous. Participants sat at individual computers in a computer lab classroom. The test instructed the participants to watch their computer screen as several words flashed in front of them, each for a few seconds. These words created six different lists each as a separate trial of the test. Each list had a subject that each word of the list was related to in some way. For example, if the subject of the list was "needle" some words that would appear may have included "point", "eye" and "sharp" (see Appendix for original data set, Roediger & McDermott, 1995). The subject of the list however would not be one of the words shown in the list. Participants were asked to watch the words and study the list.

After the words finished appearing participants were then able to click on the words they remembered on the list from a selection of words in an answer grid on their screen. The selections included words from the list and distracter words that would give the opportunity for the participant to create a false memory. There were two types of distracters: 1) normal distracters (random words that may have been shown on previous lists) and 2) special distracters. Special distracters were the subject word that although they did not appear on list, were somehow associated to all the other words in the list. After they finished answering they would continue onto the next list until all six trials were complete. The test had

no time constraint. Each participant took approximately fifteen minutes to complete the test. After they were finished they were debriefed on what a false memory was and how to read the results of their test. They were asked to print their results which were collected at the end of each experimentation period.

Analysis

The CogLab program recorded results of each participant electronically. It created three scores and gave a break down of each trial for the participant to see where he or she had correct recollections and false recollections. The three scores were then put into SPSS for statistical analysis. The scores included the percentage of correctly recalled words from the lists, the percentage of the number of recalled normal distracters (unrelated) and the percentage of the number of recalled special distracters (related). The special and normal distracters were also added together to create a fourth score to create a combined false memory score. Two statistical analyses were run in SPSS: a correlation and an ANOVA. The correlation analysis showed any relationships between the four scores, the age groups and gender. The ANOVA showed any variances each score had between the two age groups and genders.

Results

All 45 participants completed each trial of the experiment. SPSS created a mean for each of the four evaluated scores: (1) number of correctly recalled words from the list ($M = 54.76$, $SD = 72.59$), (2) number of normal distracters chosen ($M = 39.58$, $SD = 3.47$), (3) number of special distracters chosen ($M = 66.67$, $SD = 76.30$), and (4) the combined false memory score ($M = 106.25$, $SD = 79.77$) made from adding the normal and special distraction scores together. Sixteen of the participants (35.6%) did not recall any normal distracter, and thirteen participants (28.9%) recalled every special distraction word.

Correlation

Analysis of Pearson's r found a number of significant results. Significant differences were found between age and the number of correctly recalled words ($r = .38$, $p < .05$) as well as the number of recalled special distracters ($r = .31$, $p < .05$). No relationships were found between age and the number of recalled normal distracters or the combined false memory score. Gender had no significant correlations to

any of the scores from the experiment. The combined false memory score had significant relationships to all other scores from the experiment, which included correct recollection ($r = .59, p < .00$), special distracter ($r = .96, p > .00$) and normal distracters ($r = .40, p > .00$) scores. Analysis also showed that the correct recollection score had a significant relationship with recalled special distracters ($r = .60, p < .00$). Table 1 (in appendix) shows all correlation findings.

ANOVA

The older adult group rendered higher scores in every category as seen in Figure 1, however the normal distracter score ($M = 3.47$) was almost exactly the same in both age groups. Significant differences were found between the younger ($M = 6.7.56, SD = 12.36$) and older ($M = 78.34, SD = 14.30$) adult groups in their correctly recalled words scores $F(1,43) = 7.363, p < .05, \eta^2_p = 1.5$. Significance was also found between younger ($M = 70.14, SD = 21.97$) and older ($M = 83.33, SD = 19.00$) adult groups in their special distracter scores $F(1,43) = 4.577, p < .05, \eta^2_p = .10$. No significant differences were found between genders but males did get higher false memory scores in all four areas as shown in Figure 2. This shows that while the memory skills of the older adult group were exceptional when compared to the younger group they also were more likely to fall for the special distracter words.

Discussion

While the current research has used this experiment to compare age, gender and false memories the CogLab CD-ROM (Thomas Learning Inc., 2008) program used also states that more people will create false memories from special subject related distracters than normal distracters. The current research findings concur with this hypothesis. More participants in this study created false memories from special distracters than they did from normal distracters. This is thoroughly supported by the fact that while the most frequently occurring score for normal distracters was 0% the most frequently occurring score for special distracters was 100%.

The current hypothesis that significant relationships will be found between age and number of false memories created with the involvement of distracters was apparent, but not complete. The combined

false memory score, which added both the special and normal distracter scores, was not significant, however at least one of the distracter scores was. This means that while the current experiment corresponds to some previous research, there are also differences. The number of correctly recalled words from the list were higher among the older adult group which agrees with the literature that states older individuals seem to have stronger recall abilities. On the other hand, special distracter scores were higher in the older adult group when compared to the younger adult group. This clearly goes against other earlier findings, which state that older individual will have fewer memory distortions. The normal distracter category was most surprising as both age groups had virtually the same score. The correlation analysis reflected this same theme that special distracters and correct recollections were significantly connected to age, while normal distracters and the combined recollection score was not. While significant results may not be present in all score categories when compared with age, the analysis still demonstrates that distracters do cause a fluctuation in the amount of memory falsification one has and in certain age groups over others, namely the older age group.

My second hypothesis that gender would also be affected by distracters in an evaluation of recall abilities showed no significance in either statistical analytic method used. Although I did find that while males did perform better at correctly recalling words, they were also more susceptible to creating false memories. This is shown by the higher normal and special distracter scores as well as their combined false memory score. These results may be due to an imbalance between the number of males and females in this study.

Limitations

Because of limited resources when collecting a sample, some results may be affected by the inequality in the numbers of each age and gender group. Preferably the number of males and females would have been the same and the number of younger adult participants and older adult participants would be the same as well. Because the two age groups were so close in their ages and no people under the age of 18 were evaluated, confounds may be at work here. A more randomized collection method would also have been ideal in the current experiment but was impossible due to time constraints.

Some participants complained of being distracted by noises outside of the experimentation room while taking the false memory test on the computer. This may have affected their score, as they may not have been able to perform to the best of their abilities. A participant's familiarity with a computer and their skills with this technology may also have affected their scores by giving them an unfair advantage or disadvantage.

Conclusion and Future Research Suggestions

As stated before, although the hypothesis of this experiment was supported by the results, the researcher had hoped to find the existence of significance in each score across one age group. The combined distracter score was created to test if significance was found between the total false memory creations of a participant and their age. None was found which means the results showed that the relationships were more specific around a particular distracter (in this case special) not both.

The results agree with one key factor and one of the main reasons such research was done. Memory is an extremely delicate subject to study. It is complicated and must be evaluated thoroughly to see how it is connected to a person's age. Because so many factors can contribute to memory distortion it is not enough to state that one age group does better overall. When different variables are introduced, people of some ages may shine while others may falter. Therefore although significance was not found in the false memory score, the hypothesis is supported by the fact that one of the distracters did affect the number of created false memories between younger and older adults. The fact that the special distracter score was significant is also interesting as it follows the idea that special distracters are more likely to cause false memories than normal distracters. This was found to be especially true in older adults and males.

Future research if conducted with the same experiment should consider all of the confounds previously mentioned. Furthermore countless variables exist that may affect memory. New variables should be introduced to see how age (and gender) affects recall and false memory creation.

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Appendix

Table 1.
Review of Correlational Analysis

	Correct Recollections	Normal Distracters	Special Distracters	Combined Distracter Score
Age	.38**	.00	.31*	.29
Gender	-.08	-.23	-.08	-.13
Correct Recollections		.12	.60**	.59**
Normal Distracters			.13	.40**
Special Distracters				.96**

* $p < .05$

** $p < .01$

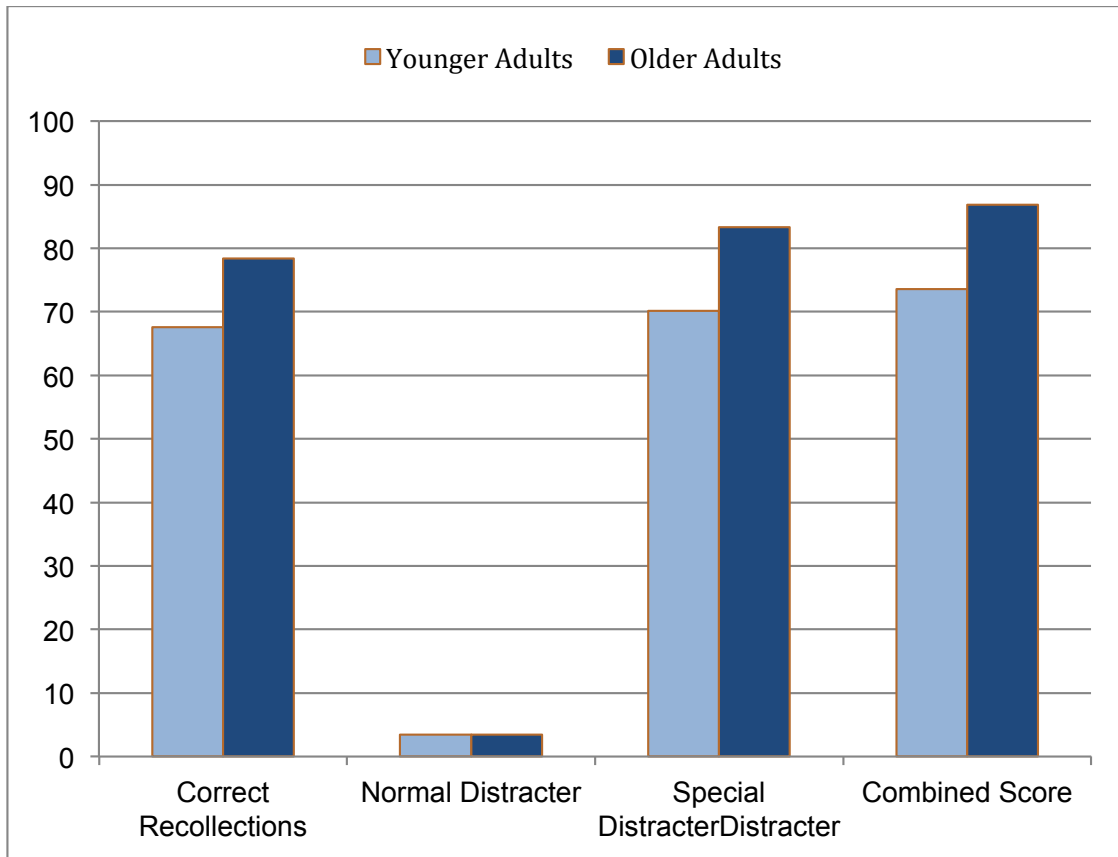


Figure 1. Comparison of score means between age groups.

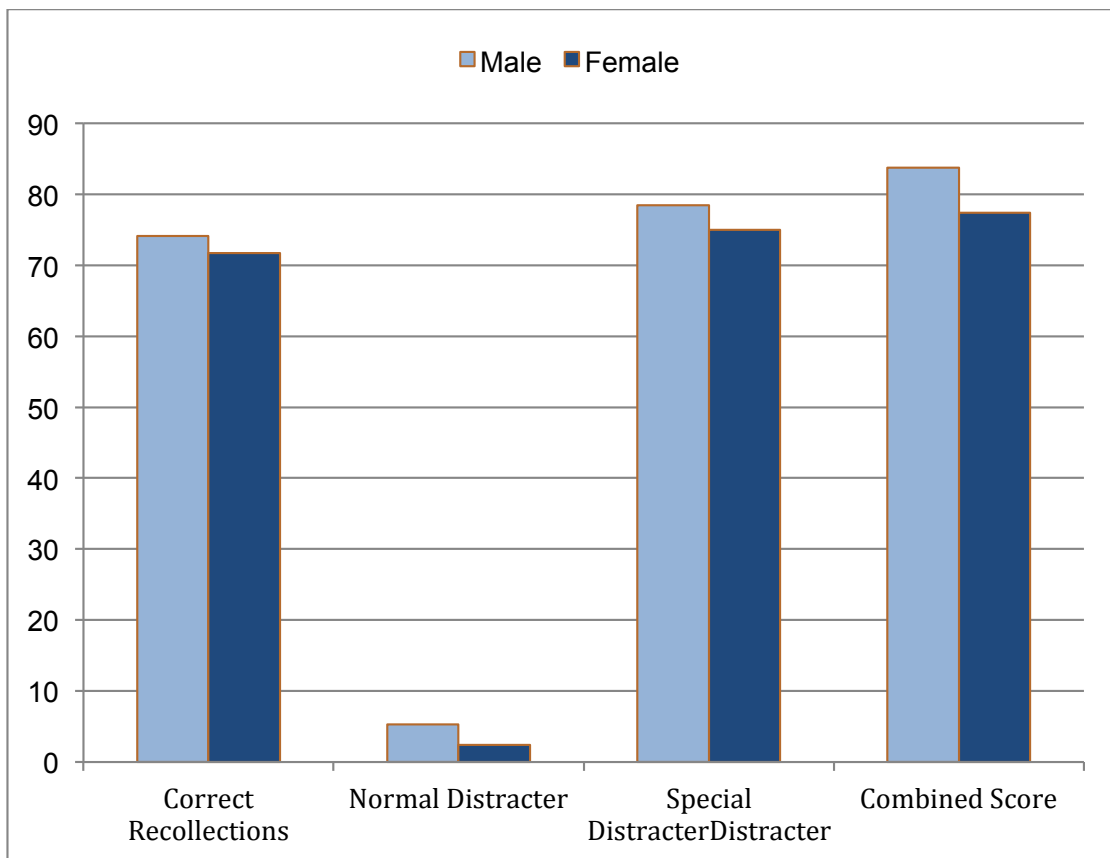


Figure 2. Comparison of score means between gender.

*ANGER: mad, fear, hate, rage, temper, fury, ire, wrath, happy, fight, hatred, mean, calm, emotion, enrage

ARMY: Navy, soldier, United States, rifle, Air Force, draft, military, Marines, march, infantry, captain, war, uniform, pilot, combat

*BLACK: white, dark, cat, charred, night, funeral, color, grief, blue, death, ink, bottom, coal, brown, gray

*BREAD: butter, food, eat, sandwich, rye, jam, milk, flour, jelly, dough, crust, slice, wine, loaf, toast

CAR: truck, bus, train, automobile, vehicle, drive, jeep, Ford, race, keys, garage, highway, sedan, van, taxi

*CHAIR: table, sit, legs, seat, couch, desk, recliner, sofa, wood, cushion, swivel, stool, sitting, rocking, bench

CITY: town, crowded, state, capital, streets, subway, country, New York, village, metropolis, big, Chicago, suburb, county, urban

*COLD: hot, snow, warm, winter, ice, wet, frigid, chilly, heat, weather, freeze, air, shiver, Arctic, frost

CUP: mug, saucer, tea, measuring, coaster, lid, handle, coffee, straw, goblet, soup, stein, drink, plastic, sip

*DOCTOR: nurse, sick, lawyer, medicine, health, hospital, dentist, physician, ill, patient, office, stethoscope, surgeon, clinic, cure

FLAG: banner, American, symbol, stars, anthem, stripes, pole, wave, raised, national, checkered, emblem, sign, freedom, pendant

*FOOT: shoe, hand, toe, kick, sandals, soccer, yard, walk, ankle, arm, boot, inch, sock, knee, mouth

*FRUIT: apple, vegetable, orange, kiwi, citrus, ripe, pear, banana, berry, cherry, basket, juice, salad, bowl, cocktail

*GIRL: boy, dolls, female, young, dress, pretty, hair, niece, dance, beautiful, cute, date, aunt, daughter, sister

*HIGH: low, clouds, up, tall, tower, jump, above, building, noon, cliff, sky, over, airplane, dive, elevate

*KING: queen, England, crown, prince, George, dictator, palace, throne, chess, rule, subjects, monarch, royal, leader, reign

LION: tiger, circus, jungle, tamer, den, cub, Africa, mane, cage, feline, roar, fierce, bears, hunt, pride

*MAN: woman, husband, uncle, lady, mouse, male, father, strong, friend, beard, person, handsome, muscle, suit, old

*MOUNTAIN: hill, valley, climb, summit, top, molehill, peak, plain, glacier, goat, bike, climber, range, steep, ski

*MUSIC: note, sound, piano, sing, radio, band, melody, horn, concert, instrument, symphony, jazz, orchestra, art, rhythm

*NEEDLE: thread, pin, eye, sewing, sharp, point, prick, thimble, haystack, thorn, hurt, injection, syringe, cloth, knitting

PEN: pencil, write, fountain, leak, quill, felt, Bic, scribble, crayon, Cross, tip, marker, red, cap, letter

*RIVER: water, stream, lake, Mississippi, boat, tide, swim, flow, run, barge, creek, brook, fish, bridge, winding

*ROUGH: smooth, bumpy, road, tough, sandpaper, jagged, ready, coarse, uneven, riders, rugged, sand, boards, ground, gravel

RUBBER: elastic, bounce, gloves, tire, ball, eraser, springy, foam, galoshes, soles, latex, glue, flexible, resilient, stretch

SHIRT: blouse, sleeves, pants, tie, button, shorts, iron, polo, collar, vest, pocket, jersey, belt, linen, cuffs

*SLEEP: bed, rest, awake, tired, dream, wake, snooze, blanket, doze, slumber, snore, nap, peace, yawn, drowsy

*SLOW: fast, lethargic, stop, listless, snail, cautious, delay, traffic, turtle, hesitant, speed, quick, sluggish, wait, molasses

SMELL: nose, breathe, sniff, aroma, hear, see, nostril, whiff, scent, reek, stench, fragrance, perfume, salts, rose

SMOKE: cigarette, puff, blaze, billows, pollution, ashes, cigar, chimney, fire, tobacco, stink, pipe, lungs, flames, stain

*SOFT: hard, light, pillow, plush, loud, cotton, fur, touch, fluffy, feather, furry, downy, kitten, skin, tender

*SPIDER: web, insect, bug, fright, fly, arachnid, crawl, tarantula, poison, bite, creepy, animal, ugly, feelers, small

*SWEET: sour, candy, sugar, bitter, good, taste, tooth, nice, honey, soda, chocolate, heart, cake, tart, pie

*THIEF: steal, robber, crook, burglar, money, cop, bad, rob, jail, gun, villain, crime, bank, bandit, criminal

TRASH: garbage, waste, can, refuse, sewage, bag, junk, rubbish, sweep, scraps, pile, dump, landfill, debris, litter

*WINDOW: door, glass, pane, shade, ledge, sill, house, open, curtain, frame, view, breeze, sash, screen, shutter

Sleep and Happiness: A Mutual Growth?

Author: Jenn Prutzer

Faculty Mentor: Melissa Terlecki, Ph.D.

Abstract: Research was conducted regarding sleep and happiness. The sample for this research was collected from Cabrini College. Participants were given a survey that asked demographic questions, questions to measure happiness, and questions to measure quantity of sleep. In the case of this research, it was found that there is no significant relationship between sleep and happiness. Therefore, no conclusions can be drawn regarding mood based on sleep quantities. Research in the area of sleep and mood is related not only in the area of positive psychology, but also in terms of depression. Generally, getting odd amounts of sleep is related to a mood disorder, but in the case of this research these ideas cannot be upheld.

Introduction

Sleep is something that no human can live without; it is something on which all humans thrive and this is a well known fact. However, to know how humans are affected by lack of sleep or an abundance of sleep, research must be conducted. It is not inherently known whether there is a set minimum or maximum to which people should adhere, there is just a suggestion of 8 hours per night; but is more sleep than this acceptable? Specifically, the relationship between sleep and happiness is a topic of interest, given the recent rise in Positive Psychology. Popular research on the relationship between sleep and happiness always includes a subjective analysis of mood. Additionally, there is typically some comparison made to a portion of the circadian rhythm or stage of sleep and mood (moods in dreaming sleep, moods in waking stages, etc.).

In a study performed by Yu (2007) on emotions during sleep, participants were asked to recall their dreams each night through the use of a dream diary. If a dream was recalled and recorded, participants were asked to rate from a list of emotions how strongly they felt (each on a scale of “0-10,” where “0” indicated an absence of that emotion and “10” indicated the strongest feeling of it. Emotions in

question included: enjoyment, surprise, distress, anger, disgust, contempt, fear, shame, and guilt. The most common emotions reported were anxiety and enjoyment, however enjoyment was reported more frequently and with more strength than anxiety. Additionally, when participants were asked to re-rate the emotions, the emotions correlated most strongly with the positive emotions reported from their dreams, not the negative emotions. These findings indicate that positive feelings experienced during dreaming have a positive effect on mood, while negative feelings are more easily forgotten after being experienced during dreaming, or stage 5 sleep.

In another study, mood was compared to changes in circadian rhythm (Murray, Nicholas, Kleiman, Dwyer, Carrington, Allen, & Trinder, 2009). Participants started off on a standard 24-hour circadian rhythm, which was gradually lengthened to 28 hours. At each stage, participants were asked to rate their positive and negative affect. Similar to the natural circadian rhythm, in the case of the 28-hour cycle, positive affect steadily increased until midday, and then slightly decreased after hour 18. Moreover, negative affect remained steady throughout the whole day in the case of the 28-hour cycle, and was consistently lower than the rating of positive affect. This finding is significant because in the case of the 28-hour circadian rhythm, participants were allotted 12 hours to sleep, indicating that increased sleep leads to improved mood.

In a study conducted by Cukrowicz, Otamendi, Pinto, Bernert, Krakow, and Joiner (2006), the other end of the spectrum was researched. They researched the relationship between insomnia and sleep disturbances, and depression and suicidality. Participants' sleep habits and level of depression were rated (using the Insomnia Severity Index, Disturbing Dreams and Nightmare Severity Index, Depression Severity Index-Suicide Subscale, and the Beck Depression Inventory). The results of this study showed that the scores of each of these tests were positively correlated; however the score that had the weakest correlative was the Disturbing Dreams and Nightmare Severity Index. This indicates that the more severe a sleep disturbance (insomnia versus nightmares), the stronger it will be correlated with depression.

Another study about insomnia was performed by Hamilton, Gallagher, Preacher, Stevens, Nelson, Karlson, and McCurdy (2007). This study looked specifically at the level of well-being in people with

insomnia. Well-being was measured using the Ryff Model (1989). Insomnia was determined by the number of nights over the course of one month, wherein participants were asked how many nights they struggled to fall asleep or stay asleep. The findings of this study were that insomnia was a strong predictor of well-being; the greater the severity of insomnia, the lower the individual's well being.

Finally, Wood, Joseph, Lloyd, and Atkins (2009), compared the influence of gratitude on sleep. Gratitude, or how grateful a person is for things in their life, was used as a point of comparison because findings in positive psychology indicate that people with high levels of gratitude are generally happier and more mentally stable. This study resulted in findings that signified a strong positive correlation between gratitude and sleep, and therefore between happiness and sleep.

According to Adrien (2002), depression is connected with decreased serotonin and as a result, often times can lead to abnormal sleeping patterns or insomnia. However, in patients diagnosed with depression it has been found that patients with depression can often times have a surge in serotonin levels immediately after a bout of insomnia. This can be explained by using the model of Selective Serotonin Reuptake Inhibitors (SSRIs). They work by only taking up some serotonin and Adrien found that this is the same mechanism that produces the natural rise in serotonin levels in patients immediately after battling insomnia.

According to Tsuno, Besset, and Ritchie (2005), depression is the most commonly comorbid disorder with insomnia. Their research also claims that 90 percent of patients with depression suffer from decreased quality of sleep. According to this research, the reasoning for such high comorbidity rates is that patients with depression have less time in the REM stage of sleep, which results in lower quality sleep.

In each of these studies the measure of happiness has varied. There are many ways to measure happiness. Additionally, the measure of sleep varied. Only one of the above studies delved into the quality of sleep of the participants. These two factors leave a great deal of room for replication and/or tweaking of previous studies to look at how sleep relates to happiness. In order to better determine the relationship between sleep and happiness in Cabrini College students a subjective survey will be given to

willing participants to measure the effect that the independent variable (sleep) has on the dependent variable (happiness). They hypothesized that what will be tested is that as the number of hours an individual sleeps increases, so too will their happiness.

Methods

Participants

Participants for this study were gathered haphazardly from the Cabrini College undergraduate student population. This sample consists of 27 males and 37 females between the ages of 18 and 32. This sample was mostly ethnically homogeneous based on the Cabrini College population, with few minorities surveyed. There were 23 freshmen, 17 sophomores, 19 juniors, and 5 seniors surveyed.

Materials

This sample was given an adapted form of the Subjective Happiness Scale (Lyubomirsky & Lepper 1999) in order to measure the independent variable. In order to measure the dependent variable, the participants were asked to answer several questions about their sleeping habits. There were two questions about sleep: how many hours of sleep do you get each night and do you regularly take naps. Participants who answered that they did take naps were asked to estimate how many hours they napped each day (see attached survey and consent form).

Procedures

The research design of this study is a low-constraint survey method. The survey information has been and will continue to be kept confidential, so as to obtain more truthful information from participants. This research design is also ex-post facto due to the fact that participants are naturally grouped into categories by how much sleep they get. They are not grouped by the nature of the study. Participants were asked to take part in the survey at either the beginning or the end of a class period. Some participants were offered an incentive of extra credit (at the discretion of their professors) and some participants were offered no incentive for participation. Those who agreed were given a consent form to sign and were told that this information was being collected for a study for a Research Methods class and that it was on the topic of sleep and mood. Following completion of the survey, participants were thanked and again

assured of the confidentiality. Participants were also given contact information in the case that they would have any questions about the study.

Results

The mean hours slept each night was 6.61 hours, with the minimum hours each night reported at 1 hour and the maximum at 9 hours. Of the 64 participants, 31 reported regularly taking naps. The range in time of these naps was from .33 hours to 9.5 hours daily. The mean amount of time spent napping among participants who reported regularly taking naps was 1.13 hours each day (see table 1).

Pearson's r was computed for participants who either napped or did not nap and their overall happiness score. The results showed that taking naps was not significantly correlated with the overall happiness score ($r=.03, p=.84$). This correlation is small in effect size. Thus, taking naps did not seem to be related to happiness scores. Pearson's r was computed for participants reported number of hours of sleep and their overall happiness score. The results showed that there was no significant relationship between the number of hours of sleep participants reported getting each night and their overall happiness score ($r=.00, p=.98$). This correlation is small in effect size. Therefore, sleep and happiness scores seem not to be related. Pearson's r was computed for the degree of depression participants reported feeling and how many hours they reported sleeping each night. The results showed that there was no significant relationship between reported depression and the number of hours slept each night ($r=.09, p=.47$). This correlation is small in effect size. Therefore, depression and the number of hours slept in a night appear not to be related. Pearson's r was computed for participants reported depression scored and whether or not they napped. The results showed that there was no significant relationship between reported depression and whether or not participants took naps ($r=-.03, p=.79$). The correlation effect size is small. Thus, depression and napping are not related. Pearson's r was computed for the number of hours participants slept each night and their reported enjoyment of life. The results showed that there was no significant relationship between enjoyment of life score and hours slept each night ($r=-.13, p=.31$). The effect size was small between these two variables. Thus, it seems that there is little relationship between enjoyment of life and how many hours a person sleeps. A Pearson's r was computed between general happiness and

hours slept each night. No significant relationship was found between these two variables ($r=.08, p=.54$). The effect size was small. Therefore, it seems that the relationship between general happiness and hours slept each night was weak. A one way ANOVA was computed to determine the relationship between the number of hours a participant slept each night and the overall happiness score $f(10, 63)= 1.05, p=.124$. This implies that there is not a significant difference between the happiness levels of participants who slept as few hours each night as 1 or as many as 9. A one way ANOVA was computed to determine the relationship between the number of hours that participants reported napping and their overall happiness score ($f(12, 63)=.76, p=.686$). This shows that there is not a significant difference between the happiness levels of participants who did not nap at all and those who napped as many as 9.5 hours each day.

Discussion

Based on the findings of this study, it cannot be concluded that there is any significant relationship between sleep and happiness, after seeing many times through correlations and ANOVAs that none of the measures of happiness had any significant relationship with any of the measures of sleep. The next time that this topic is researched it may be beneficial to use another measure of happiness. Using just the Subjective Happiness Scale, a four question measure, may not have been comprehensive enough. Additionally, the questions about sleep were not from any reliable or valid source. Using questions that measure sleep more accurately may yield different results. Also, many of the sources wrote about quality of sleep being important to a person's happiness, so studying sleep quality rather than the amount of sleep a person gets may yield more true results.

Often times measures that rely on self report can end up with false results. Participants will frequently guess what the "best" answer or the most socially acceptable answer is and just respond in that manner. With there only being four questions on this measure regarding happiness, participants were able to guess that a happy participant is more acceptable and they possibly could have falsified answers to the four questions.

Table 1

Happiness Scores of Participants Based on Napping

	N	Average Hours Napping	Average Overall Happiness
Nap	31	1.13	5.65
No Naps	33	0	4.91

Consent Form

Sleep and Mood

Dr. Melissa Terlecki, Psychology Department, mst723@cabrini.edu

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We are currently researching whether there is a relationship between the amount of sleep a person gets and their mood. To help provide more information on the topic we ask that you complete a survey of your sleep habits and mood. The survey will take about 5 minutes to complete. The survey will be recorded anonymously and kept confidential. There is no benefit for participants of this study, nor are there any risks. Questions about the experiment are encouraged at any time. Participation is voluntary and you maintain the right to refuse participation at any point without any consequence. Questions about the rights of research participants may be directed to Dr. Tony Verde, Chair of the Institutional Research Board at Cabrini College, at tverde@cabrini.edu.

Signing below indicates that you have read and understand the above form and that you agree to participate in this study.

Participant's Signature

Date

Investigator's Signature

Date

Sleep and Mood
Jenn Prutzer
JLP323@cabrini.edu

Please circle the option that best describes you for each of the following:

1. What is your gender?
Male Female
2. What is your year in college?
Freshman Sophomore Junior Senior

For each of the following, please write your answer on the line provided after each question:

3. What is your age? _____
4. On average, how many hours do you sleep each night? _____
5. Do you regularly take naps (circle one)? Yes No
6. If so, how many hours of sleep do you get through napping each day? _____

For each of the following, please circle the option that best describes you.

7. In general, I consider myself:
1 2 3 4 5 6 7
Not a very Moderately A very
happy person happy happy person
8. Compared with my peers, I consider myself:
1 2 3 4 5 6 7
Less Equally More
happy happy happy
9. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?
1 2 3 4 5 6 7
Not at Somewhat A great
all deal
10. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?
1 2 3 4 5 6 7
Not at Somewhat A great
all deal

Survey Materials adapted from: Lyubomirsky, S. and Lepper H.S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, 46: 137-55.

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Arrested Development and Postmodern Satire

Author: Timothy Rooney

Faculty Mentor: Paul Wright, Ph.D.

Abstract: “This is the story of a wealthy family who lost everything and the one son who had no choice but to keep them all together. It’s *Arrested Development*.” So goes the setup from the opening titles in nearly every episode of the 2003 series created by Mitchell Hurwitz. *Arrested Development* is a series rife with layered meanings, fast paced dialogue, and nonstop humor. With its rampant intertextuality and self-referential narrative, it is an example of uniquely postmodern, highly ironic, self-aware television. With running gags, a convoluted ongoing narrative and cultural and institutional satire, it proves that nothing is sacred in the age of television. Corporations, politics, family dynamics, and more are all fair game.

Arrested Development weaves all of these elements together through fast paced dialogue, subtle foreshadowing, callbacks, background jokes, and a unique story structure of narrative complexity.

Before discussing specifics of the series itself, the concept of postmodernism must be understood. In the book *Television Studies: The Key Concepts*, the authors, Neil and Bernadette Casey, Justin Lewis, Ben Calvert, and Liam French describe postmodernism in terms of replacing modernism, including an economic shift from a society based on production to one based on consumption. However, postmodernism is, more importantly, a reflection of a society that has developed a “globalised social life with transport and communication technologies enabling shrinkage of time and space and the transformation of global culture.”² Carl Bybee and Ashley Overbeck build on this explanation of postmodernism in their discussion of *The Simpsons* as postmodern television by saying: “Modernism states that individuals and nations, guided by rational thinking and scientific achievements, are moving toward a more humane, more just, and more economically prosperous future.”³ In this sense, modernism was a celebration of progress and its eventual positive outcomes. It was concerned with making things new, to paraphrase poet Ezra Pound, and a desire to be progressive. Postmodernism on the other hand, is an understanding of recent society and art that deliberately rejects the concept of progress. As Casey et al. alluded to, postmodernism has emerged in a world based more on consumption than production. There is

no real progress in contemporary economy and society, at least not to any truly beneficial end.

Understanding modernism as having its roots in the Industrial Revolution and postmodernism as a reaction to the Cold War and other similar conflicts can help to illuminate this particular opposition. Bybee and Overbeck write, “Postmodernity typically is distinguished by an undermining of authority...the questioning of progress, and the tendency to view the future as empty.” They also identify two elements of postmodernism: self-referentiality and intertextuality, or the “seemingly random quotation of one text by another.”

Dominic Strinati, in his article, “The Big Nothing? Contemporary Culture and the Emergence of Postmodernism,” identifies five major elements of postmodernism. Those elements which Strinati mentions are: the breakdown of the distinction between art and culture, an emphasis on style and look over content, the breakdown between high culture and pop culture, confusion over time and space, and the decline of meta-narratives.¹⁰ In order to understand how the above relates to *Arrested Development*, elaboration is necessary. The concept of the breakdown of the distinction between art and culture is the idea that media and art are increasingly influencing the way society defines itself and the world. In the past, society influenced the views and opinions of media, but in today’s postmodern world, the increased media saturation is continually informing the way people live their lives.

Take, for example, all of the advertising people are exposed to every day, the 24-hour news cycle, and the growing important role of television and the internet; all of these things contribute to the increased intermingling of what people think and what they perceive through the media. The second element Strinati recognizes is the importance of style and look over content, which is a fairly straightforward idea. It is not just in art and media, though. The importance of status symbols among the wealthy is a good example of this element in every day society. In the case of *Arrested*, it is not necessarily style at the expense of content, but certainly the show is very concerned with its presentation and its technical aspects, an emblematic feature of the postmodern television series.

As far as the breakdown between high culture and pop culture is concerned, the most important idea is that nothing is off limits. Anything in postmodern society can be used for a joke or entertainment.

Just look at the rampant proliferation of reality TV and the increasing desire for tabloid pop culture news through sources such as *TMZ*. At times it seems like more people are concerned with what politicians do in their personal lives than what decisions they make. The next element Strinati mentions is confusion over time and space, which, as an element of style, derives from the increasingly global culture. With the rise of the internet and the global economy, traditional ideas of time and distance are questioned and confused. In television and even films and literature, the idea is at play in non-linear narrative. The final element Strinati talks about is the breakdown of metanarratives.

The authors of *Television Studies* also touch on the breakdown of metanarratives as an important precept of postmodernism. The decline of the metanarrative is an idea pioneered by Jean-Francois Lyotard, author of *The Postmodern Condition*. In his essay, he writes that the decline of narratives is “an effect of the blossoming of techniques and technologies since the Second World War, which has shifted emphasis from the ends of actions to its means.”⁷ Metanarratives themselves are a way of prescribing meaning to history and global events. Marxism, religion, and other large-scale political theories are all considered metanarratives. In the postmodern view, as Lyotard understands it, meaning is only what society and media construct it to be through their intermingling, and so large-scale explanations have no place. In Lyotard’s words, “narrative function is losing its functors, its great hero, its great dangers, its great voyages, its great goal. It is being dispersed in clouds of narrative language elements.”⁷ He goes on to say that people live in the midst of these numerous, intermingling, “clouds.” It is through ones own interpretations and actions of these intermingling factors—and not grand metanarratives—that provisional meaning is obtained.

At first it seems silly to relate such high concept abstractions to a show like *Arrested Development*, but the series is very self-aware of its construction as a television show and it is through that sense of awareness that it displays its postmodernism. Jason Bateman, who plays the series main protagonist, Michael Bluth, has described *Arrested Development* as “*Royal Tenenbaums* shot like *Cops*.”² In fact, Mitchell Hurwitz, in explaining the genesis of the show, identified the same series of J.D. Salinger stories that inspired *Royal Tenenbaums* as a partial inspiration for *Arrested*.⁹ The Salinger stories

in question, including those contained in “Franny and Zooey,” focused on the Glass family, which were all concerned with seven miserable siblings. In the same interview, Hurwitz described how he received a call from Imagine Entertainment that Ron Howard had the idea for a single-camera comedy. It was from there that the creators of the series derived its faux-cinéma vérité style.

In the audio commentary for the extended pilot on the season one DVD, directors Anthony and Joe Russo suggest the biggest influence on the style of the show was reality television. The fake-documentary style allowed for nonlinear storytelling through the use of narration and “file footage.” Because of the nature of a documentary, flashbacks and exposition could be utilized without the baggage of character subjectivity or dialogue. A character’s motivations could be explained by a cut to footage from the past or a sentence or two from the narrator. It also allowed for the structure of the show itself to ironically contradict or comment on character interactions or story developments. One particular example saw the character Tobias trying to convince his wife Lindsay that their marriage is worth saving. He claims that “we’ve had some great times,” which is immediately followed by a cut to a white screen with only the text “Footage not found” (*Arrested* “Let ‘Em Eat Cake” 01.22*).

This self-reference, while being an element of postmodernism itself, is also indicative of a concept that television analyst Jason Mittell describes as “narrative complexity.” On a basic level, narrative complexity is a term he uses to identify the trend of many recent shows to turn toward a more serialized form of storytelling. According to Mittell, narratively complex shows reject “the need for plot closure within every episode that typifies conventional episodic form [and] foreground ongoing stories across a range of genres.”⁸ A show that illustrates narrative complexity will often have both episodic and serialized stories, striking a balance between the two traditional television story types. Mittell also recognizes that shows like *Seinfeld* and *Arrested Development* use these ongoing story arcs and unresolved plots to “provide backstory for in jokes and self-aware references.”⁸

Arrested is full of examples of this. Its narrative is extremely self-referential and things that may seem to be offhand jokes may prove to be more important or have a second meaning after viewing the

* Season and episode numbers are denoted parenthetically next to episode title in Season.Episode format.

series as a whole. One aspect of the series that is indicative of that penchant for self-reference is the copious use of foreshadowing, with the most memorable example being the loss of Buster's hand in the second season. While at first the seal biting off his hand seems merely an absurd nonsequitur, it is actually rather extensively alluded to throughout season two. One example of a joke that reads in an entirely new way after being aware of the eventual outcome comes from the episode "Amigos." While at his maid's house and under the mistaken impression that he was in Mexico, Buster sees a hand shaped chair that had been in his room throughout the series prior to this point (Fig. 1). Upon seeing it, he remarks that his own had gone missing and then says, "I never thought I'd miss a hand so much" (*Arrested* 02.03 "¡Amigos!"). There are even more examples dealing directly with Buster's hand, including his skipping army training in an arcade and getting "hooked playing the skill crane" (*Arrested* 02.06 "Afternoon Delight"). Notably, he wins a stuffed seal as a prize from the crane game, but he also picks the seal up with a large claw, and the narrator purposefully uses the word "hooked" to foreshadow Buster's eventual hand replacement. All of these small items interweave together to form a deeply complicated and self-referential narrative that resonates in new ways with every viewing.

The fun does not stop at Buster's hand. There are countless examples of foreshadowing throughout the series. The "light treason" that is at the root of the Bluth Company's finances is hinted at from season one, and it is not completely explained until the end of the series. The mini-mansions in the Iraq news footage, George Michael's teacher's infatuation with Saddam Hussein and the "H. Maddas" files the company secretary Kitty uses for blackmail against George Sr., all hint at the extent of said treason. The amount of foreshadowing and specific examples are too numerous to list; it is sufficient to say simply that the show is keenly self aware of its plotting structure. This is another element of narrative complexity that Mittel identifies. In speaking of *Seinfeld*, he writes that it offers, "a more self conscious mode of storytelling than is typical within conventional television narration. The show revels in the mechanics of its plotting, weaving stories for each character together in a given episode through unlikely coincidence, parodic and circular structure."⁸ About *Arrested Development* specifically, he says that the show expands on that idea by providing even more coinciding plots with often six or more storylines

intermingling with one another, resulting in “unlikely coincidences, twists, and ironic repercussions,” which may not pay off until later episodes.⁸

Once again, the case of Buster’s lost hand serves as a prime example. The seal attack is actually the last link in an extremely convoluted chain of events. It starts all the way back in season one when GOB, the oldest Bluth sibling played by Will Arnett, marries a woman after a series of escalating dares. The woman is then further explained to be a certified seal salesperson. GOB eventually acquires a seal from her and uses it in his act. The act goes wrong and a cat jumps into the box the seal is hidden in and is eaten. In frustration, GOB releases the creature into the sea from whence it came. Shortly after, following an argument with his mother over his enrollment in the army, Buster runs into the ocean. While out in the ocean, a man yells to watch out for “loose seal,” which Buster mishears as Lucille. Tobias later remarks that a seal would only attack a human if it had acquired a taste for mammal blood. That is one of the most elaborate and far-reaching instances, but there are even more self-contained ones.

In the episode “Mr. F” (03.05), for example, the Bluths are concerned with Japanese investors coming to inspect the progress of a housing development that the Bluth Company had promised. To fool the investors, GOB suggests that they build a small-scale model outside the window. Michael buys a train set for his son in an attempt to help him have more fun, and George Sr. purchases a jetpack he saw advertised online in an attempt to escape his house arrest. Meanwhile, Tobias is talking to an “agent” at the gym, who he mistakenly believes to be a casting agent, but is really a government agent. As this is going on, Michael is also concerned with both a mole in the company and moles around the planned development area. The episode climaxes with a massive convergence of every storyline in the episode where they all collide in an over-the-top misunderstanding that simultaneously resolves these disparate narrative threads.

Self-reference and self-awareness are rampant in the series, even in ways more subtle and less expansive and intricate. *Arrested Development* contains a number of callbacks and running jokes that can only be fully appreciated through watching the whole series. There are a number of catchphrases throughout the show, most notably by GOB, but other characters as well. Just a few examples: “Come

on!” “I’ve made a huge mistake,” and, “No touching!” There are also various running gags, including the Bluth family members’ chicken dances, none of which resemble a chicken. As Michael observes, “Has anyone in this family ever even seen a chicken?” A much more subtle recurring gag is the Bluth boys’ total lack of understanding of Hispanic culture. Many members of the family think Portugal is located in South America, confuse Mexicans for Columbians, and none of them have any idea what “hermano” means. More subtle recurring background jokes are George Sr’s love for ice cream sandwiches and GOB stealing Michael’s food upon entering a room. Tobias’s malapropisms and his desire to be a performer collide in “The One Where Michael Leaves,” when he wants to join the Blue Man Group. In explaining this, he tells Michael, “I’m afraid I just blue myself” (*Arrested* 02.01). In general, Tobias is constantly putting his foot in his mouth, with one of the most notable examples being his claims as the world’s first “Analrapist,” (Fig. 2) which he explains to be a cross between an analyst and therapist. All of these self-aware jokes and callbacks to earlier episodes add a second level of humor for viewers in the know.

The multiple levels of humor are also visible in the intertextual jokes that run throughout the series. *Arrested* is constantly making knowing references to its actors’ other work, their personal lives, and pop culture in general. At one point, in commenting on his father’s lying and acting abilities, Michael calls George Sr. “a regular Brad Garrett” (*Arrested* “For British Eyes Only” 03.02). For people who follow award shows, this joke has an extra level of humor as opposed to just Michael’s sarcasm. Brad Garrett had just beaten out Jeffrey Tambor, who plays George Sr, in the 2005 Emmy Awards for Best Supporting Actor. In the first season, GOB marries a woman after a series of escalating dares and that woman is played by Will Arnett’s real life wife, Amy Poehler. Tony Hale, who had not had much acting experience on screen before *Arrested*, was in a commercial for Volkswagen cars that was lampooned in a later episode. In the commercial, Tony Hale is dancing to “Mr. Roboto” by Styx, and at one point in the show, Buster is doing the same, only to accidentally skewer his hook in the car’s dashboard.

Perhaps the most memorable and subtly humorous example of the show’s intertextuality is in the character Bob Loblaw. In season three, Henry Winkler left the show to film a new series. When Winkler left, his character, attorney Barry Zuckercorn, was replaced by Scott Baio’s new character Bob Loblaw.

Upon introduction, Bob Loblaw states, “This isn’t the first time I’ve been brought into replace Barry Zuckercorn. I can do anything he can do, plus skew younger” (*Arrested* “Forget-Me-Now” 03.03). For anyone who watched *Happy Days* this line has a whole separate meaning. Taken simply in the context of the show, it is not even really a joke, but viewers in the know can appreciate the humor in its intertextuality. In the later years of the *Happy Days* series, Henry Winkler’s character Fonzie had aged too much for producers’ taste. So they brought in Scott Baio as Chachi in order to draw the youth market that had been drawn in by Fonzie’s rebellious streak when Winkler was younger.

To deal with Winkler’s departure, the creators of *Arrested Development* decided to use the opportunity for an intertextual joke that may only have been funny to one segment of their audience. Henry Winkler’s character Barry is also used as a vehicle for a few more *Happy Days* references, including utilizing the famous Fonzie pose at one point. Another notable example is from the episode “Motherboy XXX.” Barry jumps over a small shark at the end, directly lampooning the infamous scene from *Happy Days* that prompted the industry term “jumping the shark,” which denotes the point in a series in which the quality is notably lower or the initial premise is abandoned or compromised. To drive the point home even further, Barry jumps the shark immediately after he says, “I’m going to Burger King.”

The intertextuality of *Arrested* does not end with Henry Winkler. The show’s executive producer and narrator, Ron Howard, co-starred with Winkler in *Happy Days*, and he has his own share of intertextual jokes. Surprisingly, there is little crossover in the gags between Winkler and Howard and most *Happy Days* jokes are confined to Winkler’s character. The narrator, on the other hand, is mostly used to make jokes centered on the *Andy Griffith Show*, which Ron Howard starred in as Opie. There are other general pop culture references throughout the series, one being Tobias’s attempt to reenact the exact plot of *Mrs. Doubtfire*, “with a little bit of Mary Poppins,” after being kicked out of the house. The season three episode, “For British Eyes Only,” and other episodes revolving around the Mr. F storyline contain several references to the James Bond films. Much like the self-reflexive nature of the plot, the number of intertextual references throughout the series is exhaustive and could be endlessly explored. Ultimately, the point boils down to the fact that *Arrested Development* is extremely self-conscious of its plotting, its jokes,

and its very structure as a television series—and that self-consciousness of structure is a key element of postmodernism. In fact, the show actively lampoons its status as a television series and calls attention to that fact by poking fun at television conventions.

The most glaring example is the “next time on *Arrested Development*” segments, which almost never have anything to do with what is to come, and usually act as a punchline for jokes or an epilogue for the episode. The season three episode “S.O.B.s” very obviously brings attention to its status as a television series by explicitly satirizing stunts many television shows pull in order to garner ratings. At one point, the narrator literally begs the audience to tell their friends about the show. The series utilizes many of the features of its storytelling structure and medium in order to directly address the show’s critics, impending cancellation, and various rumors about its fate. In the episode “Motherboy XXX,” the show openly mocks the advertisement inherent in broadcast television. The producers were pressured by the FOX network to include product placement for Burger King, and they did so by making it blatantly clear that the scene was an advertisement and treating it with disdain. Burger King is explicitly mentioned by name throughout the scene, the scene is set in the restaurant, and at one point Carl Weathers, playing himself, praises the store for allowing free refills. At this, Tobias raises his burger and proclaims, “It’s a wonderful restaurant!” followed by the narrator piping in, “It sure is!” (*Arrested* “Motherboy XXX” 02.13)

The complete irreverence with which the show treats all of these various references permeates the entire series and its objects of satire. One of the major aspects that drives the entire focus of the show is the complicated family relationships among the Bluths. The relationships are so complicated, in fact, that by the end of the series, one or two family members are added. Even putting aside the question of lineage, the relationships between all the family members are unhealthy and dysfunctional. George Sr. and Lucille are both emotionally withholding parents and constantly pit their children against one another. The children resent their parents, and Lindsay and Tobias are almost completely neglectful of their daughter Maeby. Even Michael, who seems to be a healthy father in comparison to the rest of his family’s craziness, often completely ignores his son’s opinions and does not think about what effects his actions may have on his son. The family relationships are even more complicated due to the theme of incest that runs

throughout the show—a theme that itself amplifies the incestuous postmodern storytelling the show represents. There is most prominently George Michael’s crush on his cousin Maeby, who may or may not actually be his cousin, and even the introduction of Steve Holt as a love interest for Maeby is complicated when he is shown to be GOB’s illegitimate child. Again, too, Buster is right at the center of the conversation with his pseudo-Oedipal relationship with his mother Lucille. Not only is he completely reliant on her, but when he does actually attempt to distance himself from Lucille, he winds up in a relationship with a woman the same age and with the same name, played by infamous diva Liza Minelli. Family dynamics are constantly a mess in *Arrested Development*.

The series does not limit its skewering to just the medium of television or family relationships. Nothing is off limits for its satire. *Arrested* is an equal opportunity offender and, in typical postmodern fashion, makes fun of everything from politics, to religion, to corporations. A favorite target for the creators is the war in Iraq, which serves as a backdrop for a lot of the goings on in the Bluth Company. Illegally trading with Iraq is what lands George Sr. in jail, but it goes beyond that. At one point during his short tenure as acting-president of the Bluth Company, GOB rushes a model home into development, which is forced into completion through cutting corners and leaving the inside completely empty. GOB then organizes an elaborate ribbon cutting ceremony and displays a “Mission Accomplished” banner much like the one President George W. Bush displayed on an aircraft carrier when he declared victory in Iraq just as prematurely. The same rush to judgment is displayed when the government (through questionably legal practices allowed through the Patriot Act) intercepts a picture from Tobias’s cell phone and mistakes it for a map of Iraq indicating the location of weapons of mass destruction. In the end, it turns out they are a close up shot of Tobias’s testicles (*Arrested* “Sad Sack” 02.05).

Corporations also get a good amount of flack through out the series. The Bluth Company’s troubles are inspired by real life scandals such as those that took place in Enron and Adelphia (O’Connell). They also seem to anticipate the economic scandals of more recent years. The large corporate spending and embezzling and the “riches to rags”⁶ concept were all inspired by real-life goings-on. The models include such celebrity examples as Martha Stewart, who was arrested for similar criminal behavior. In

effect, the series uses all of those real life examples as a source of legitimacy for its outrageous behavior. Arguably, the level of satire goes even deeper than just the corporate misbehavior, and the series mocks the lifestyles of the wealthy in general. Think of *Arrested Development* in the context of much of its competition during its run. The airwaves were dominated by a reality television boom, which has already been firmly established as an inspiration for the visual style of the show. FOX's own *The Simple Life*, which starred Paris Hilton, and other reality series like *The Surreal Life* on VH1 focused on washed-up celebrities and celebrated the absurd behavior of the pampered rich. These examples, as well as more recent series like the *Real Housewives* franchise, all show how woefully out of touch the rich are with the general population. In this light, the satire in *Arrested Development* is deeply postmodern.

In her article about postmodern satire, Lisa Colletta writes, "Much of the humor in popular culture is ironic, but it is the postmodern irony of cynical knowingness and self-referentiality."⁵ That is certainly the case for *Arrested*. But Colletta goes on to say, "Traditionally, irony has been a means to expose the space between what is real and what is appearance, or what is meant and what is said, revealing incoherence and transcending it through the aesthetic form and meaning of a work of art," and here is the most important point, "the irony of postmodernity denies a difference between what is real and what is appearance and even embraces incoherence and lack of meaning."⁵ *Arrested Development* offers no alternative to the Bluths' behavior and does not even seem to condemn it. It simply illustrates the behavior. The same can be said for the various reality shows that depict similarly wealthy and hapless families. What makes *Arrested Development* satirical, though, is that it is actively mocking that lifestyle, and it is postmodern because it simply leaves it at that. The viewer is given this family and their ridiculous adventures at face value.

In postmodernism, satire is not necessarily used to illustrate any alternative way of life, it is instead openly mocking of anything and everything. There is nothing off limits for mockery, as is the case in *Arrested Development*. Returning back to the five elements of postmodernism listed earlier with *Arrested Development* as a case study, it becomes evident that these various elements are not distinct features, but a series of interrelated ideas. In fact, Lyotard's observed decline of metanarratives sums up all

of the other elements of postmodernism into a single guiding idea. Through the collapse of traditional modes of instilling meaning in life, the boundaries between society, media, art, and culture fade away as well. What is left is simply an intermingling of ideas and “intertextual” references that simultaneously contribute and compete in the construction of meaning. In postmodern society, where global cultures are so interconnected and media is so influential on society’s understanding of reality, the things that used to be considered as sacred or off limits are just more fodder for mockery. *Arrested Development* shows that postmodern art and media do not necessarily reflect any particular point of view or ideology. Rather, their use of satire simply illustrates a state of being. As a clear example of postmodernism, *Arrested Development* invites us to laugh at the precariousness of our human condition in the postmodern world.

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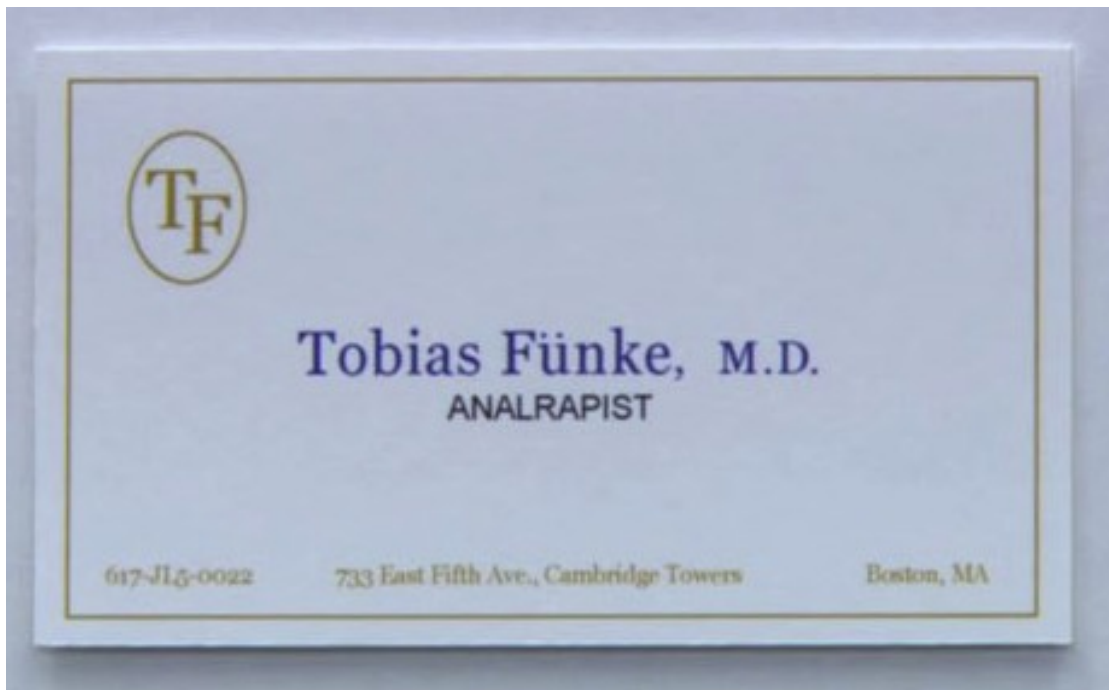


Fig. 2

“El poema ‘Canción de otoño en primavera’ y el poder del amor”

Author: Brittany Ryan

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Abstract: In “Canción de otoño en primavera,” Rubén Darío employs the use of the metaphor of the seasons to structure the poem and recreate the poet’s lifelong, emotional search for love. As a central part of the poem, the flow of the seasons serves to emphasize the evolution of the poetic voice from innocent youth to tainted maturity. This analysis of “Canción de otoño en primavera” examines the poet’s continued faith in the redemptive power of love, a power he believes defines the human experience, and one that he still waits for despite the disappointments throughout his life. This paper was presented at Cabrini College’s Undergraduate Research Symposium in April 2011.

En su poema “Canción de otoño en primavera”, Rubén Darío expresa luto por la pérdida de la juventud y la pérdida de los amores de su vida. Entre los temas más importantes están la nostalgia, las distintas experiencias amorosas, las mujeres y la idealización de la juventud. A pesar de la tristeza que comunica la mayoría del poema, la voz poética es optimista sobre las perspectivas del resto de su vida. Por esta razón, un tema central del poema es el poder redentor del amor. En su poema, Darío crea un paralelo entre las estaciones cíclicas del año y los amores de su vida. Darío construye el poema con las imágenes de cada estación para representar sus amores diferentes. Al usar las estaciones para hablar de las etapas de su vida, Darío crea una imagen muy poderosa para los lectores y para comunicar su nueva esperanza. En “Canción de otoño en primavera”, Darío sigue de cerca las pautas de la poesía modernista, con el uso de un lenguaje metafórico y estrofas líricas. El propósito de este análisis es demostrar la estructura y las figuras poéticas.

En el poema, la voz poética relata la historia de sus amores pasados. En la primera estrofa, y en otras estrofas que se repiten a lo largo del poema, esta voz lleva luto por la pérdida de su juventud. El poeta describe su vida: su nacimiento, sus tipos de amores, su última pérdida de amor, y su esperanza para el futuro. Cuando describe su primer amor en el verso 12, el poeta dice que su pelo era oscuro, “hecha de noche y de dolor” (Méndez-Faith 115). Ese verso parece relatar la vida del poeta literalmente, ya que fue

concebido en la noche, y nació del dolor de su madre. Desde el punto de vista simbólico, las imágenes demuestran que su vida tiene dolor emocional, y que hace algún tiempo que vive en la oscuridad.

El poema se construye a partir de la descripción de tres amores. El primer amor era muy inocente, con una mujer bonita y pura, “una dulce niña” (Méndez-Faith 114, verso 7). Se conocieron en su juventud, cuando él era un joven tímido. Para el poeta, su primer amor fue un amor inocente. El poeta describe a la mujer “como el alba pura” (Méndez-Faith 115, verso 9). Fue el comienzo de su vida afectiva, y la primera experiencia con el amor. Para representar su estado de dependencia, el poeta compara su vulnerabilidad con la del rey Herodes que cae bajo la seducción de Herodías y Salomé. Salomé era la hija de Herodías, y la hijastra de Herodes. Durante la celebración del cumpleaños de Herodes, Salomé bailó para él. Como Herodes quedó impresionado, él le prometió hacer cualquier cosa por ella. A la petición de su madre Herodías, Salomé le pidió la cabeza de Juan Bautista en una fuente. La voz poética crea esta conexión entre Salomé y Herodías con su primera experiencia amorosa para ilustrar que este primer amor tuvo el poder de controlarlo, como las dos mujeres de la Biblia. Él se sentía tan embelesado por la belleza de su amada que hubiera hecho cualquier cosa por ella. Ella tenía la apariencia de la seducción para el poeta porque él era muy inocente. Ese amor marca la primavera de la vida del poeta. Como la primavera es la alborada del año, el despertar de la naturaleza y el nacimiento de las plantas, ese amor fue el nacimiento de sus emociones y de su capacidad de amar. La voz poética usa imágenes para ayudar al lector a entender la relación entre la primavera y el primer amor. El poeta dice en el verso 9 “Miraba como el alba pura” (Méndez-Faith 115), para comparar la inocencia de la joven con la fresca pureza de la madrugada primaveral. En el verso 10 leemos “[S]onreía como una flor”, es decir con la alegría de las flores que crecen en la primavera (Méndez-Faith 115). Ella era bonita y pura, como la primavera. Pero eventualmente el amor terminó y el narrador perdió su inocencia, aunque no su fe en el amor.

Su segundo amor fue un amor con una mujer apasionada, y un amor físico. El poeta lo describe como “una pasión violenta” en el verso 26 (Méndez-Faith 115). El amor aquí se compara con la estación de verano. El verano sigue a la primavera y es una estación más intensa que la primavera. Lo mismo

ocurre con esta mujer y este amor. El poeta es mayor y su amor es también maduro. Este es un amor más físico y apasionado que el primer amor puro e inocente de la juventud. Pero, eventualmente, la mujer amante rompe su corazón. A partir de esta experiencia, el poeta pierde su fe en el amor, como podemos ver en la novena estrofa. Esta estrofa es una en las que la voz poética lleva luto por la pérdida de su juventud. Sin embargo aquí, cambian unas palabras. En lugar del “ya te vas para no volver” del verso 18, la voz poética dice “te fuiste para no volver” en el verso 34 (Méndez-Faith 115). Con el uso del pretérito el poeta representa cómo después de ese amor, su fe se disipa. Es el término del amor inocente y de la juventud.

El poeta elige su tercera relación —una relación física también y muy intensa. Este amor es voluntario. Es un amor pasional, donde la mujer demanda todo del poeta. Ella es una mujer posesiva y apasionada. Después de su primer amor inocente y su segundo amor físico, el poeta elige otro amor físico y fuerte. Este amor se describe como la estación del otoño, pues ocurre después del verano, pero también cuando las plantas empiezan a morir. Eventualmente, este amor termina como todo en el otoño, y el poeta se lamenta sobre la pérdida de su juventud.

Después del otoño, el poema declara la llegada del invierno. La voz poética habla sobre sus otros varios amores, repartidos en todas partes del mundo. En esta etapa él siente estar en un exilio físico y emocional. Durante esta parte de su vida el poeta continúa la búsqueda de una mujer perfecta, pero su misión es en vano. Ahora, el poeta está en el invierno de su vida, cuando todo está frío y muerto. No puede encontrar una mujer que sea para él porque su corazón está en un estado de muerte. Sin embargo, el poeta continúa teniendo esperanza en alcanzar el amor. Espera una nueva primavera, un nuevo amor. El poeta recobra su fe en el amor en el verso 69 del poema: “¡Mas es mía el Alba de oro!” (Méndez-Faith 116). Con el venir de un nuevo día, la voz poética declara que cree en el poder redentor del amor y la idea que este amor final y puro es una necesidad para una vida completa y cercana a Dios.

Los temas de la nostalgia y la memoria están representados en todo el poema, cuando el poeta recuerda su vida. La historia afectiva de su corazón y la tristeza están en la pérdida de su fe en el amor, y la idealización de la juventud es evidente en las estrofas que se repiten. Obviamente, para el yo poético

hay una conexión entre el amor y la juventud, y cada vez que él pierde el amor, pierde un poco de su juventud también.

El poema es un ejemplo de la poesía modernista. Una de las características del modernismo es el uso del lenguaje metafórico y la creación de imágenes fuertes. El título refleja el propósito del poema, es el canto del poeta en el otoño de su vida pero ansioso de recuperar la primavera perdida. “Canción de otoño en primavera” presenta una actitud de evasión de la realidad, otra de las características de la poesía modernista: el poeta no cree que su vida esté cerca de su término. Él continúa creyendo en el amor y en “el Alba de oro” (Méndez-Faith 116). Otro elemento central es la música elemental que el poema demuestra con su ritmo y estrofas líricas. Pero más importante, vemos que el poeta considera que el amor tiene el poder de redimir al ser humano. Es una fuerza que supera a cualquier otra experiencia humana. El amor puro es un deseo de todo ser humano, el cual se siente incompleto sino logra esta experiencia. En “Canción de otoño en primavera”, Darío hace una representación de nuestra experiencia humana. La voz poética invita al lector a compartir la descripción de sus amores para ilustrar su pérdida de la juventud y la inocencia. Finalmente, a pesar de todo, la voz poética continúa teniendo fe en el amor, la esperanza que todos nosotros tenemos para lograr una existencia humana más plena. Ese amor puro nos ubica más cerca de Dios, y nos hace sentir completos.

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Effects of Relationship Status on Mood

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Abstract: Studies pertaining to depressive symptoms and adolescent romance have found that adolescents who date steadily or frequently, as well as adolescents who engage in more sexual activity, experience greater depressive symptoms than those who do not. In hopes to determine whether or not depression is correlated with relationship status, depression was studied among 212 undergraduate students at Cabrini College who were single, in a relationship, engaged, married, or responded with other specifications. Participants completed a survey including general demographics and a self-report depression scale for the general population. Although total depression scores were not significantly correlated among groups, certain questions including content pertaining to depressive symptoms were significant among certain groups. Because depression scores were not significant across relationship status groups, results suggest that depression is not directly correlated with any one group including those who are single, in a relationship, engaged, or married.

Romantic Relationships and Depressive Symptoms

When we think of romance, we often think of endless love, pure happiness, and living life blissfully. Other times, we may think about the conflicts and challenges faced in romantic relationships, and realize that romance isn't always as peachy keen as we often believe, or make it out to seem. Researchers have been gradually conducting studies to try and establish that romantic relationships actually can cause negative affect and depressive symptoms for many individuals involved. Because the factors and stressors involved in romantic relationships can be rather complex, finding ways to verify this idea of romantic relationships causing depressive symptoms seems rather difficult for researchers to do. Relationship satisfaction scales, as well as both positive and negative mood scales, can certainly contribute to research findings pertaining to this topic, to assist in determining whether or not romantic relationships and depressive symptoms are, in fact, significantly correlated. In establishing whether or

not romantic relationships are associated with depressive symptoms, individuals involved in romantic relationships can prevent these depressive symptoms from affecting their relationships.

Interested in learning about the correlations between romantic relationships, experiences, and activities, and depressive symptoms in adolescence, Davila (2008) discussed how the literature and research on romantic relationships in adolescence and depression was rather small, but that the few findings on romantic relationships and depression were consistent.³ According to Joyner and Udry (2000), romantic attractions, activities, and relationships are linked with depressive symptoms in adolescence.⁵ Joyner and Udry also suggested that, in their study, it was mainly adolescent girls who became involved in romantic relationships that developed increasing depressive symptoms over time. Davila, Steinberg, Kachadourian, Cobb, and Fincham (2004) used Joyner's and Udry's findings as a basis for both a cross-sectional study of early-adolescent girls, as well as a longitudinal study of late adolescents, including both boys and girls.⁴ In the cross-sectional study, their findings suggested that girls who reported being in a current or previous romantic relationship experienced greater depressive symptoms than girls who had no experience with romantic relationships. The findings of the longitudinal study suggested that both girls and boys who were involved in romantic relationships experienced greater increases in depressive symptoms six months later than those participants who were not involved in romantic relationships.

Compian, Gowen, and Hayward (2004) and Quatman, Sampson, Robinson, and Watson (2001) found that adolescents who dated steadily or frequently, as well as adolescents who engaged in more sexual activity, experienced greater depressive symptoms.^{1,6} Davila used this research to develop three models of associations between adolescent romance and depressive symptoms.³ The first model, the *normative trajectory model*, was based on studies conducted by Connolly and Williams (2000) and Welsh, Grello, and Harper (2003), suggested that adolescents who conform to developmentally suitable norms will be better "adjusted" than adolescents who partake in non-normative behavior.^{2,10} This model also suggested that adolescents who engage in non-normative romantic behavior may be at a greater risk for depressive symptoms compared to those who do engage in normative romantic behavior, such as

flirting and kissing.³ Davila's second model, the *attention impairment model*, based on studies conducted by Joyner and Udry (2000), suggested that romantic activity and involvement pulls attention from other important areas of function, causing impairments, which in turn, increases the risk for depressive symptoms.^{3,5} The third model, the *stress and coping model*, suggested that romantic involvement and relationships are naturally challenging, resulting in adolescents, who do not have the proper coping resources to overcome romantic challenges, being at a greater risk for depressive symptoms.³ The last model, which focuses on individual differences, suggests that personality or "interpersonal style" may have an effect on relationship experiences. Davila's four models provide not only a foundation of research, but suggestions and ideas for future studies for researchers studying this topic. Elaborating on these models and conducting studies based on these models may provide results for unanswered questions.

Likewise Davila, Steinberg, Kachadourian, Cobb, and Fincham (2004) conducted two studies examining the connections between depressive symptoms and romantic engagement in adolescence.⁴ The authors hypothesized that that romantic involvement was "associated more strongly with symptoms among adolescents who have a more preoccupied style or relating, compared to adolescents who have a less preoccupied style of relating" (p. 161).⁴ The first study involved 96 early adolescent girls living in the Buffalo, New York area, who were currently involved in a larger study examining family and adolescent relationships. The families participated in a 3½ hour laboratory session that involved the adolescent girls privately filling out questionnaires assessing preoccupied style, relationship status, and depressive symptoms. The results suggested that compared to girls who were not currently in a romantic relationship, girls who were in a romantic relationship reported significantly higher levels of current depressive symptoms. The results also suggested that lifetime depressive symptoms and current relationship status were significant contributors to current depressive symptoms. The second study involved four parts. The first part involved conducting a longitudinal study built from the first study to test the associations between romantic involvement and depressive symptoms. The second part involved sampling late adolescents to examine whether or not there were similar associations with different age

groups. The third part involved including both males and females in the study. The last part involved including coded interview measurements for points of interest in the study. The second study involved 94 first-year undergraduate students from the University of California, Los Angeles, who were involved in a larger study of risk factors for romantic dysfunction. The participants were required to complete an initial face-to-face interview session, where they were interviewed regarding their current relationship status, their attachment styles, and their depressive symptoms. At the interview, they were also asked to fill out questionnaires. Six months later, these participants completed a telephone interview regarding their depressive symptoms, their relationship status, and their level of romantic chronic stress since their initial face-to-face interview. After another six months, the participants completed another face-to-face interview session, where they, again, reported their depressive symptoms, their relationship status, and their level of romantic chronic stress since their telephone interview. The results showed that participants who were involved in a relationship during the time of the initial face-to-face interview session experienced an increase in depressive systems by the time of the telephone interview, six months later. However, the relationship status of participants during the telephone interview did not predict depressive symptoms by the time of the second face-to-face interview session, six months following. These two studies provided researchers with ideas of how to examine the relationship status and depressive symptoms of participants, and which methods can be used to determine correlations. Future researchers may want to conduct one large longitudinal study involving both parts of the study presented here, to present consistent results.

Rizzo, Daley, and Gunderson (2006) also conducted a study to examine the role of depression interpersonal sensitivity, and chronic and episodic romantic stress in adolescent girls.⁸ Involved in this study were 55 tenth-grade high school girls (74% Hispanic-American and 26% African-American). The students were required to complete a 36-item questionnaire at the end of their tenth-grade year, and then again six months later. The students also participated in two interviews, once at the end of their tenth-grade year, and then again six months later, involving specific questions based on events involved in romantic relationships and break-ups. The results showed that chronic romantic stress at the beginning of

the study was associated with greater symptoms of depression during the follow-up period. The study showed that girls with greater interpersonal sensitivity who experiences more chronic romantic stress were the most vulnerable to continue developing and maintaining symptoms of depression. Although episodic romantic events did not directly predict the development of depression, the Interpersonal Sensitivity Measure correlated with episodic romantic events to predict symptoms of depression. Chronic non-romantic stress at the beginning of the study was directly associated with greater symptoms of depression over the follow-up period (while controlling for prior depression), whereas episodic non-romantic events in did not directly predict the development of depressive symptoms. This study would be helpful for future researchers examining romantic relationships and depression because significant results were found suggesting that interpersonal sensitivity and romantic stress play a key role in depression in teenage girls. Future researchers should elaborate thoroughly on the findings of their research, such as how certain measures correlate with past experiences of the participants, to provide other researchers with more information pertaining to this topic.

Tolpin, Cohen, Gunthert, and Farrehi (2006) conducted a study to examine the effects of depressive symptoms and relationship satisfaction on dating college students' exposure to romantic relationship events.⁹ Involved in this study were 119 introductory psychology students, 65% of them being women, who were currently involved in heterosexual, exclusive dating for at least six weeks. The participants involved in this study were required to complete a minimum of six (of ten possible) days of daily diaries. The daily diaries consisted of several different measures: Depressive Symptoms: to indicate how often the participant felt depressed each week; Relationship Satisfaction: to simply measure their satisfaction with their romantic relationship; Daily Survey of Mood: to assess their in mood in certain moments; Daily Survey of Relationship Satisfaction: to again evaluate their overall satisfaction with their romantic relationship; Daily Survey of Stressors: to determine how often daily stressors played a role in their lives; and Daily Survey of Positive Events: to evaluate moods with daily positive events.⁹ The participants were required to complete the daily surveys via the Internet. The results showed that there were significant effects of depressive symptoms on negative affect, but not on daily relationship

satisfaction. It was also found that participants who had initially experienced more depressive symptoms, experienced greater decreases in positive affect in response to romantic relationship stressors than the participants who experienced fewer depressive symptoms. Because this study was complex and contained multiple parts, this study could serve as a main source of research in future studies involving relationship satisfaction, romantic relationship stressors, and/or depression in relationships. Future researchers may want to study a detailed topic within this study, to narrow down the results and focus on a more specific topic, such as how past experiences in romantic relationships relate to depressive symptoms, or how longer relationships compared to shorter relationships correlate with depressive symptoms.

Finally, Williams, Connolly, and Segal (2001) conducted a study to evaluate past research that has suggested that low intimacy in adolescent girls' developmentally salient relationships is connected with cognitive vulnerability to depression.¹¹ Involved in this study were 85 adolescent high school girls, in grades 11-13, living in an urban area. First, participants were required to complete the Network of Relationship Inventory, a measure used to assess intimacy in relationships with best friends, romantic partners, mothers, and fathers, by rating the amount of intimacy in their relationship. Next, the participants participated in a negative mood induction, involving the adolescents listening to a short selection of sad music for seven minutes through headphones and recall a sad event in their lives. The participants completed the Dysfunctional Attitude Scale both before and after participating in the mood induction. The results suggested that intimacy tends to be higher in relationships with both romantic partners and best friends than in relationships with mothers and fathers during late adolescence. The study also showed that as the moods of the adolescent girls became more negative, the adolescents with little to no intimacy in their romantic relationships had a significantly greater increase in cognitive reactivity compared to the girls with moderate to high intimacy in their romantic relationships. To relate this specific study to romantic relationships and depressive symptoms, researchers could perform a meta-analysis to make correlations between depressive symptoms in romantic relationships and negative moods

and intimacy in romantic relationships. Future researchers may want to examine both depressive symptoms and negative moods in romantic relationships to expand research findings.

As researchers have suggested, there are significant correlations between romantic relationships and depressive symptoms. Because the correlations between romantic relationships and depressive symptoms have been found to be significantly strong, researchers have been striving to conduct more studies to provide more supporting evidence of this. Work, school, and relationships with family members and friends seem to form, in one way or another, stressors involved in romantic relationships. These outside stressors are what cause negative affect within romantic relationships, and in turn, play a significant role in causing depressive symptoms for one, if not both, individuals involved in the relationship. Although all relationships are different based on the individuals involved, romantic conflicts and stressors often stand in the way of maintaining positive affect. Because of this, romantic relationships have been associated with depressive symptoms, suggesting that negative moods are connected to romantic relationships. Previous studies and research findings have formed a sturdy, yet still rather small, foundation for future researchers to continue correlating romantic relationships and depressive symptoms, and whether or not depressive symptoms originate from romantic relationships.

Thus, it is hypothesized that individuals involved in romantic relationships are more likely to experience symptoms of depression than those who are not. As suggested by previous researchers, individuals who experience chronic romantic stress tend to be susceptible to depressive symptoms. Through analyzing depressive symptoms among individuals involved in romantic relationships, as well as individuals who are not, inferences can be developed in regard to determining the effects of relationship status on mood. Implications can also be formed to suggest whether or not the stress of those involved in relationships is a result of romantic stress or everyday life stressors.

Method

Participants

Using haphazard sampling, participants were gathered from 18 psychology, sociology, and social work classes at Cabrini College. Participants included 212 undergraduate students (48 males, 23%; 162

females, 76%). All levels of undergraduate students participated in the study (55 freshmen, 26%; 52 sophomores, 24%; 45 juniors, 21%, 60 seniors, 28%). The age range of participants was 18-43 years ($M = 20.42$, $SD = 3.08$). Participants included 195 students who reported being heterosexual (92%), 7 students who reported being homosexual (3%), 7 students who reported being bisexual (3%), and 4 students rejected to respond (2%). Of the 212 students involved in this study, 110 participants reported being “single” (52%), 90 participants reported being “in a relationship” (42%), 6 participants reported being “engaged” (3%), 3 participants reported being “married” (1%), 3 participants chose the option “other” and responded with explanations including “friends with benefits,” “it’s complicated,” and “long distance” (1%), and 1 participant rejected to respond (0.9%). Options “separated,” “divorced,” “widowed,” and “remarried” were included, but not applicable for this sample.

Materials

The survey used for this study included self-created demographics and a self-report depression scale. The self-created demographics consisted of age, level of education including options for freshman, sophomore, junior, and senior, relationship status including options for single, in a relationship, engaged, married, separated, divorced, widowed, remarried, and other, gender including options for male and female, and sexual orientation including options for homosexual, heterosexual, bisexual, and other. The self-report depression scale used for research in the general population was obtained and adapted from Radloff (1977).⁷ The Center for Epidemiologic Studies Depression Scale (CES-D) consisted of 20 items based on how the participant felt or behaved that week.

Depression rating. Depression was judged on a 5-point likert scale including answers “rarely or none of the time (less than 1 day),” “some or a little of the time (1-2 days),” “occasionally or a moderate amount of time (3-4 days),” and “all of the time (5-7 days).” For items that portrayed negative ideologies, “rarely or none of the time (less than 1 day) = 0,” “some or a little of the time (1-2 days) = 1,” “occasionally or a moderate amount of time (3-4 days) = 2,” “and all of the time (5-7 days) = 3.” For items that portrayed positive ideologies, scores were reversed with “rarely or none of the time (less than 1 day) = 3,” “some or a little of the time (1-2 days) = 2,” “occasionally or a moderate amount of time (3-4

days) = 1,” “and all of the time (5-7 days) = 0.” Scores for each individual question were added up to provide a total score. Total scores of 16 or higher indicated depression.

Procedure

After receiving approval from instructors, a brief explanation of the study was provided for 18 psychology, sociology, and social work classes held in Founder’s Hall classrooms at Cabrini College. Because the content of the questions included in the survey had potential for causing discomfort or distress, contact information was provided for the Director of Counseling and Psychological Services at Cabrini College. The contact information for the Chair of the Institutional Review Board at Cabrini College was provided as well, so that questions pertaining to research students’ rights could be directed suitably. In each classroom, participants signed a consent form and then completed a survey during the first or last ten minutes of class, depending on the preference of the instructor. After completion, participants placed their consent forms and surveys into two separate folders to ensure the confidentiality of their responses.

Results

A two-way Analysis of Variance (ANOVA) was conducted to evaluate the relationship between relationship status and depression. The independent variable included 9 levels: single, in a relationship, engaged, married, separated, divorced, widowed, remarried, and other. Total depression scores among participants who reported being single, in a relationship, engaged, married, or responded with other specifications ranged from 0 to 54, with an average score of 13.60 ($SD = 9.59$) (See Figure 1.). Based on the scoring for the Center for Epidemiologic Studies Depression Scale, 145 participants (68%) obtained overall scores lower than 16, indicating no depression, while 68 participants (39%) obtained scores of 16 or higher, indicating depression (See Figure 2.). The results for Question 3 were significant, $F(4) = 2.80$, $p = .01$, showing that differences lie between relationship status and the inability to shake off the blues even with help from family. Results were also significant for Question 9, $F(4) = 3.31$, $p = .01$, showing that differences exist between relationship status and thoughts of life being a failure.

Tukey's post-hoc tests revealed no differences between any relationship status group and Question 1 ($M = .61, SD = .77$), Question 2 ($M = .49, SD = .71$), Question 4, ($M = .105, SD = .96$), Question 5 ($M = 1.12, SD = .86$), Question 6 ($M = .51, SD = .76$), Question 7 ($M = .120, SD = 1.02$), Question 8 ($M = .93, SD = .91$), Question 10 ($M = .53, SD = .73$), Question 11 ($M = .102, SD = .95$), Question 12 ($M = .84, SD = .85$), Question 13 ($M = .69, SD = .71$), Question 14 ($M = .60, SD = .79$), Question 15, ($M = .45, SD = .77$), Question 16 ($M = .70, SD = .85$), Question 17 ($M = .40, SD = .74$), Question 18 ($M = .69, SD = .81$), Question 19 ($M = .39, SD = .72$), Question 20 ($M = .66, SD = .82$), and Total Score ($M = 13.6, SD = 9.59$). However, a significant difference was found within Question 3 between participants who were involved in a relationship ($M = .44, SD = .75$) and participants who were engaged ($M = 1.33, SD = .82, d = -.89, p = .04$), suggesting that a majority of participants in both groups experienced the inability to shake off the blues less than one day per week. A significant difference was also found within Question 9 between participants who were single ($M = .20, SD = .49$) and participants who were engaged ($M = .83, SD = 1.79, d = -.63, p = .02$), as well as participants who were involved in a relationship ($M = .11, SD = .44$) and participants who were engaged ($M = .83, SD = 1.79, d = -.72, p = .01$), suggesting that a majority of participants in these three groups thought about their life as being a failure less than one day per week. Based on mean performance, participants who were engaged thought about their lives as being failures less than one day per week more so than participants who were single or involved in a relationship.

Discussion

As results from the two-way ANOVA have suggested, significant differences were not found among relationship statuses and overall depression scores. However, because each question was correlated with each relationship status separately, significant differences were found among specific questions. Seeing significant differences among relationship statuses single, in a relationship, and engaged certainly deviated from prior research, as previous studies have shown that those who are involved in romantic relationships generally experience greater depressive symptoms than those who are not. Prior research has also suggested that this is often the case during adolescence, which therefore may

explain the difference in results, as relationships can be drastically different from adolescence and young adulthood. Age differences may play a significant role in depression and romantic relationships, as young adult relationships tend to be more serious than relationships of adolescents. The seriousness of the relationship may also have an impact on the depression level of those involved in romantic relationships. As previous research has suggested, those who are involved in serious romantic relationships are often distracted by romantic activity and involvement that pulls attention away from other areas of functioning, causing impairments, which in turn, causes a greater risk for depression.

In realizing that the seriousness of relationships may have a significant impact on depression, future researchers may want to take into consideration how long individuals have been involved in their current relationship, or how long an individual who is single has been single. Previous relationships and break-ups may also play a significant role in depression in new relationships, as previous experiences are often carried over into new experiences. The time and effort that is often required in relationships may be added into the equation of depression in romantic relationships as well. Because stress-related situations involving conflicts and disagreements often arise within romantic relationships, these stressors contribute to the overall mood and depression level of the individuals involved. Moreover, past, present, and future experiences all play significant roles in depressive symptoms for current and future relationships. Although research on this topic is rather minimal, the impacts depression have on romantic relationships are undoubtedly taken into consideration when results are analyzed and suggestions are made. All aspects considered, romantic relationships and depressive symptoms are frequently discussed as being correlated whether proven by research studies or not. Because of this, inferences are better shaped when using concrete data and factual analyses, improving the overall literature pertaining to this topic.

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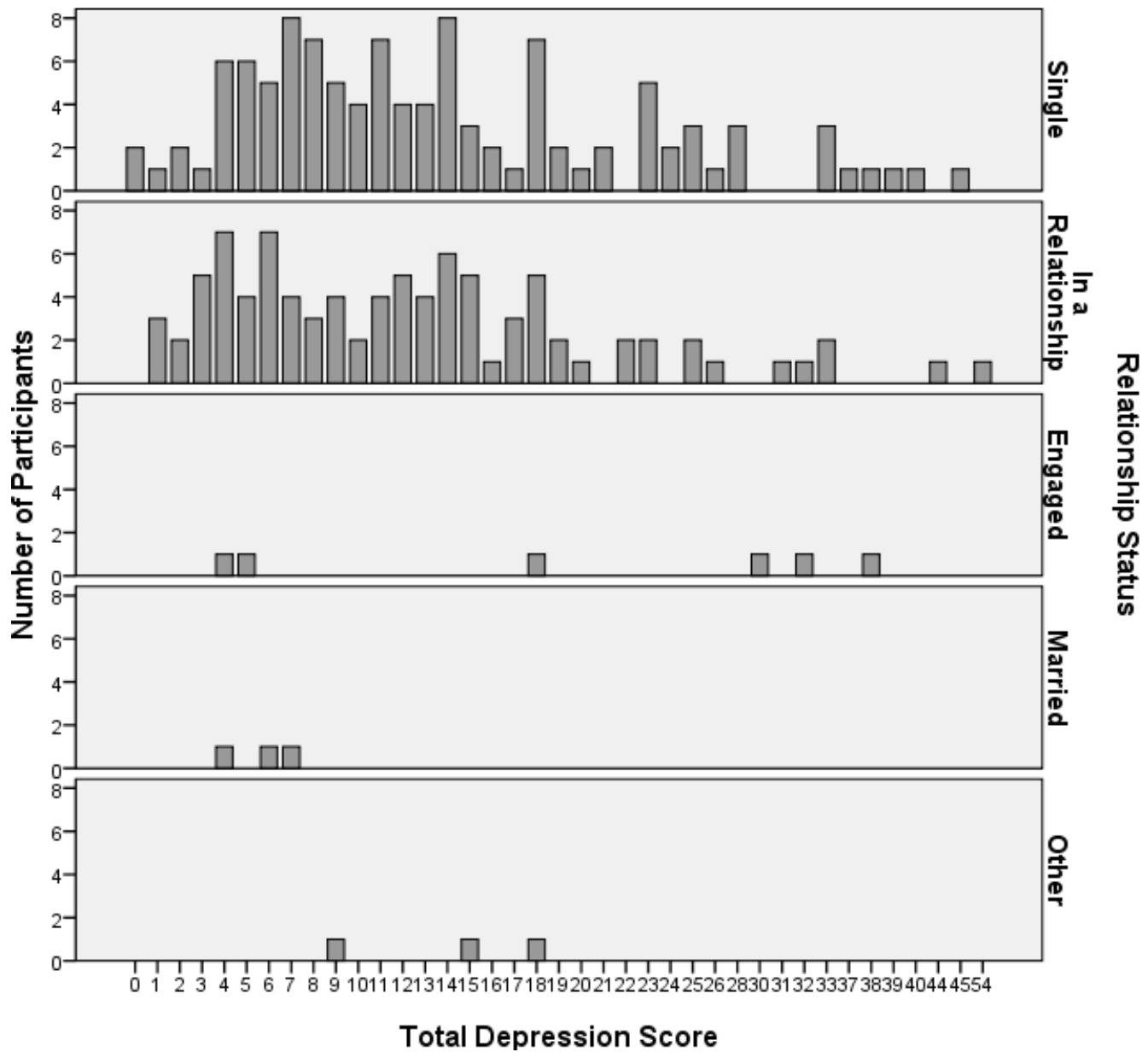


Figure 1. Frequencies of Total Depression Scores among Participants with Relationship Statuses of Single, In a Relationship, Engaged, Married, and Other Specifications.

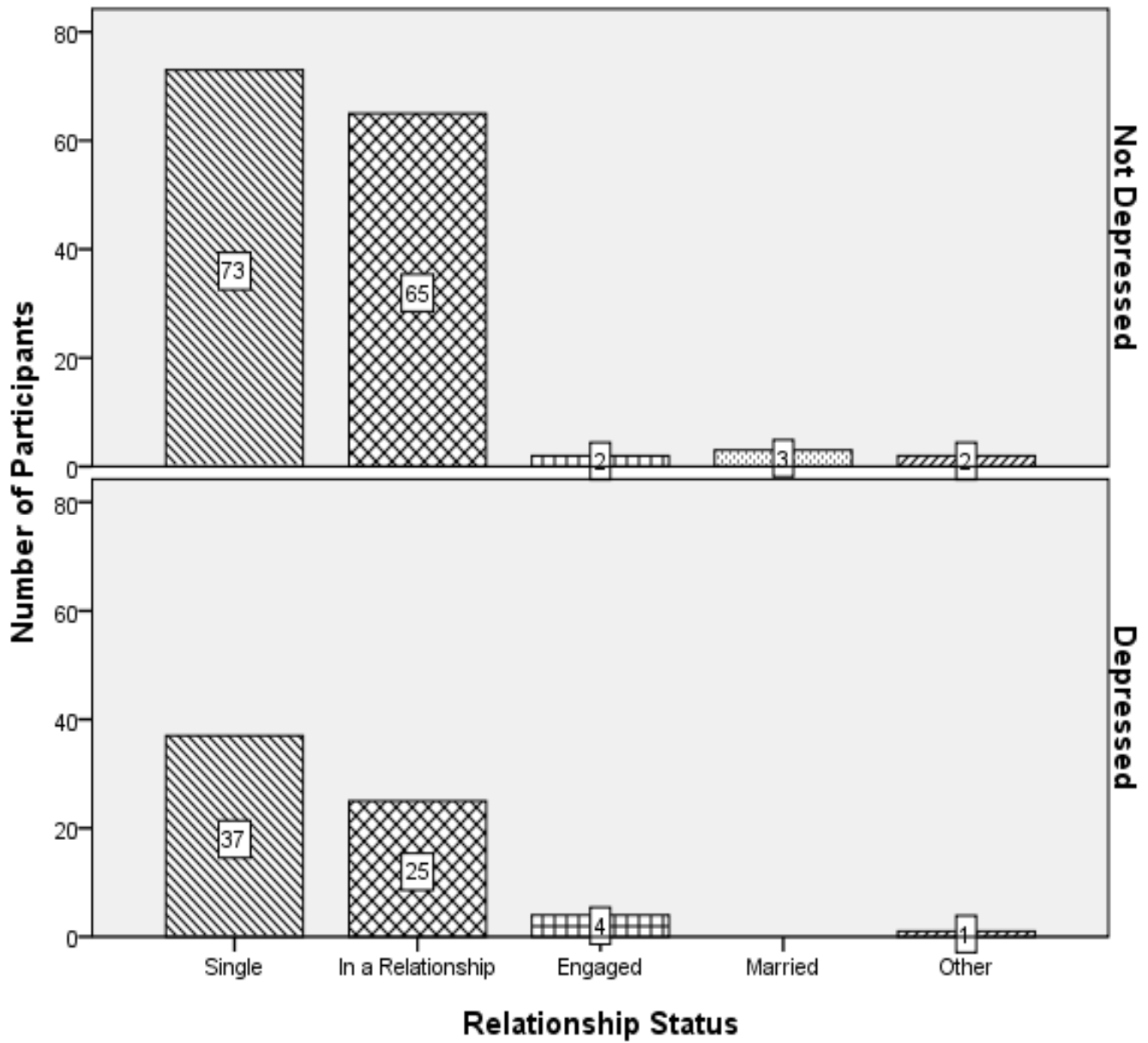


Figure 2. Number of Depressed and Nondepressed Participants among Relationship Statuses of Single, In a Relationship, Engaged, Married, and Other Specifications.

The Effect of Birth Order on Personality

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Abstract: Birth order is defined as a person's rank by age among his or her siblings. Alfred Adler (1870-1937) was one of the first theorists to suggest that birth order influences personality, believing that birth order can leave a permanent mark on an individual's lifestyle. This study investigated if a person's birth order has significantly shaped their personality as previous studies have claimed. Seventy-nine Cabrini College students were surveyed for the purpose of this research. Participants were grouped by birth order (firstborn, laterborn, and only child). Results showed that firstborn participants significantly showed firstborn traits such as being achievement-oriented, responsible, self-confident, and rule-enforcing; laterborn participants significantly showed laterborn traits such as being generous, adventurous, cooperative, and affectionate. The third group, only children (who are said to show the same traits as firstborns) showed no difference in traits expressed. The research replicated the results of past research showing that firstborns and laterborns highly exhibit the traits they are supposed to, while only children did not tend to display one set of traits over the other.

Introduction

Birth order is defined simply as a person's rank by age among his or her siblings. Alfred Adler (1870-1937) was one of the first theorists to suggest that birth order influences personality. He believed that birth order can leave a permanent impression on an individual's lifestyle, which is one's habitual way of dealing with tasks of friendship, love, and work. Additional birth order factors that should be considered are the spacing in years between siblings, the total number of children, and the changing circumstances of the parents over time. The influence of birth order on the development of personality has become a controversial issue in psychology since Adler's time.

One important theory of personality states that the Big Five personality traits of *openness*, *conscientiousness*, *extraversion*, *agreeableness*, and *neuroticism* represent most of the important elements of personality that can be measured (Sulloway, 1996). Sulloway suggests that birth order has strong and consistent effects on the Big Five personality traits (Costa & McCrae, 1985). He argues that firstborns are more conscientious, more socially dominant, less agreeable, and less open to new ideas when compared to laterborns. However, one cannot look at birth order alone; other variables statistically relate to birth order such as family size, and a number of social and demographic variables.

According to Rodgers, Cleveland, van der Oord, & Rowe (2000), appropriate tests of the relationships between birth order and personality require a within-family design. In contrast to the null results of within-family tests of the relationship between birth order and intelligence, within-family tests document significant relationships between birth order and personality (Paulhus, Trapnell, & Chen, 1999). Using a within-family design, Paulhus et al. found that firstborns are reported to be higher achievers and more conscientious, whereas laterborns are reported to be more rebellious, agreeable, and liberal. There are differences in the logic predicting birth order relationships with intelligence and

personality. For example, Sulloway's (1996) claims regarding personality were constructed around the influence that an older dominant sibling can exert over a younger, submissive sibling.

The birth order literature is characterized by conflict and ambiguity. For example, Sulloway (1996) and Zajonc (1983) have reported systematic and significant effects, whereas other authors claim that there are simply no effects of birth order on personality (Ernst & Angst, 1983; Schooler, 1972). In a recent review, Sulloway (1996) offered novel hypotheses about birth rank differences. Using the Big Five personality dimensions (Costa & McCrae, 1985), Sulloway claimed that firstborns are more achievement oriented, antagonistic, anxious, assertive, conforming, extraverted, fearful, identified with parents, jealous, neurotic, organized, planful, responsible, self-confident, and traditional. Moreover, they tend to affiliate under stress and are more likely than laterborns to assume leadership positions. Laterborns are, according to Sulloway, more adventurous, altruistic, cooperative, easygoing, empathetic, open to experience, popular, rebellious, risk-taking, sociable, and unconventional.

Some researchers, particularly Harris (1998) who questioned the role of parental influence in personality development altogether, states that "popular stereotypes" about birth order rank differences do exist and that they reflect empirical consistencies. According to her findings, people believe that firstborns are "serious, sensitive, responsible, worried, and adult-oriented; and laterborns are independent, cheerful, and rebellious". Interestingly, she also found that second-borns view their older siblings as bossy and aggressive.

Also, Ernst & Angst (1983) and Sulloway (1996) made some interesting conclusions from the same birth order research. Sulloway concluded that "the literature exhibits consistent trends", and Ernst and Angst concluded that "birth order influenced have been widely overrated". Many traits derived by Ernst and Angst – similar to those states earlier in the above literature – came primarily from Adler's theory of sibling rivalry (Adler, 1927, 1928).

Herrera, Zajonc, Wieczorkowska, & Cichornski (2003) conducted a study which sought to isolate people's beliefs about the link between birth order and personality attributes and found that (a) firstborns are believed to be the most intelligent, obedient, stable, and responsible, and the least emotional; (b) only

children are believed to be the most disagreeable; (c) middle-borns are believed to be the most creative, emotional, extraverted, disobedient, irresponsible, and talkative. Their results are consistent with Baskett (1985) and Musun-Miller's (1993) findings that firstborns are believed to be the most obedient, only children are believed to be the least likeable, and lastborns are believed to be the least obedient. They are also consistent with Nyman's (1995) findings that firstborns are believed to be responsible and laterborns are believed to be outgoing and friendly, and with Sulloway's (1996) hypothesis that lastborns are the most rebellious and disobedient.

In contrast to the other studies reviewed, both Schooler (1972) and Ernst & Angst (1983) concluded that evidence of birth order differences is inconsistent and weak. Interestingly, Harris (1998) stated that "firstborns behave like firstborns, and laterborns like laterborns, only when they're in the presence of their parents or their siblings". She states that birth order effects on personality do exist but they only exist in the home. People leave them behind when they leave home. Other interesting information found during Sulloway's (1996) research concludes that high intelligence was attributed to firstborns while lastborns were believed to be the most creative but not as intelligent.

There still exists the controversy between personality and birth order, or birth order's effect on personality. The research cited above give information that both prove and disprove this ongoing argument; this paper only barely scratches the surface. This research has investigated the hypothesis which is that only children and firstborn individuals tend to exemplify traits that are classified as "firstborn traits" such as being adult-oriented, conservative, dependent, obedient, etc; while laterborn individuals tend to exemplify traits that are considered 'laterborn' such as showing empathy, extraversion, peer-oriented, creativity, etc. For research purposes the independent variable was specifically birth order while my dependent variable was personality.

Methods

Participants

Seventy-eight participants (50% males and 50% females) were used in this research study.

Additionally, the firstborn group had sixteen females and twelve males. The laterborn group had sixteen

females and twenty males. And the only child group had seven females and seven males. Students attending Cabrini College, a privately funded college in Radnor, Pennsylvania, were used as participants. The approximate age range for the participants was 18-22 years. The sample included diverse majors and a primarily Caucasian sample (95%), which is reflective of the school's student body. Informed consent was obtained from the participants.

The sample was obtained through haphazard and snowball sampling methods by way of entering classrooms, gaining permission from professors and distributing the survey constructed for my research.

Materials

For research purposes, a low-constraint self-constructed survey was used based on personality traits found to be displayed by firstborns and laterborns along with a multitude of questions that were added based on specific demographics such as gender, ethnicity, age, major in college, year in college (freshmen, sophomore, junior, and senior), and the participant's birth order were used.

The scoring method use on the survey was as follows: answers to certain questions on the survey were given a label of either "firstborn" or "laterborn". Then, once all thirty-one questions were graded, the "scores" were tallied up, and depending on how a participant answered they would get a final scoring of "displayed more firstborn traits" or "displayed more laterborn traits". Each person then would be categorized as a "firstborn displaying firstborn traits", "firstborn displaying laterborn traits", "laterborn displaying firstborn traits", "laterborn displaying laterborn traits", "only child displaying firstborn traits", and "only child displaying laterborn traits".

Procedures

In order to gain access to the Cabrini College community, I emailed past professors that I have had; the email included a brief description of my research and asked what time was better for him or her for me to come in to class to distribute my survey. Most of my professors I emailed allowed me to come in near the end of their allotted class time.

Before I entered the classrooms, the professors introduced me to the students, and once he or she gave me the floor I would describe my research to them, not mentioning exactly what I was looking for so

that I would not skew their answers. After I discussed my research briefly, I distributed my survey to the students while instructing them to sign and detach the consent form before they took the survey. There was a manila envelope for them to place their consent forms and a folder for them to place their surveys in once they were finished; these two items were located at the front of the classroom. I sat at a desk located a good distance away from the front table where the surveys and consent forms were being collected so that I was close enough to answer questions but not close enough to distract the participants' ability to answer the survey's questions. On average, the survey took ten minutes to complete.

Results

Individual one-sample Chi Square tests were conducted to assess the main research question: Does birth order cause an influence on personality? The methods in this research compared firstborn individuals, laterborns individuals, and only child individuals. The first test conducted was to see whether firstborn individuals displayed more firstborn traits. The results of the test were significant, $X^2 = (1, N = 28) = 7.00, p = .01$. The following proportions of firstborn participants who expressed more firstborn traits (75%) were greater than firstborn participants who expressed laterborn traits (25%). These results suggest that firstborn individuals generally do display traits that are considered firstborn.

The second test was conducted to see whether laterborn individuals displayed more laterborn traits. The results of the test were significant, $X^2 = (1, N = 36) = 18.79, p = .00$. The following proportions of laterborn participants who expressed more laterborn traits (86%) were greater than laterborn participants who expressed firstborn traits (14%). These results suggest that laterborn individuals generally do display traits that are considered laterborn.

The third test was conducted to see whether only child individuals displayed more firstborn traits. The results of the test were not significant, $X^2 = (1, N = 14) = .29, p = .59$. The following proportions of only child participants who expressed firstborn traits (57%) were only slightly greater than those expressed laterborn traits (43%). These results suggest that only children are relatively equal when it comes to expressing firstborn traits or laterborn traits.

Additional Chi-Square analyses were run to see if males or females had a higher tendency to exhibit traits representative of their birth order. The first test conducted was for firstborn females. The results were significant, $X^2 = (1, N = 12) = .90, p = .00$. The following proportions of firstborn females that showed more firstborn traits (88%) were greater than firstborn females that showed laterborn traits (13%). The second test conducted was for firstborn males. The results were not significant, $X^2 = (1, N = 12) = .33, p = .56$. Even though the results were not significant, the following proportions of firstborn males showing firstborn traits (58%) were greater than firstborn males showing laterborn traits (43%). These results suggest that females show a greater tendency to exhibit firstborn traits over their male counterparts.

The same tests were used to compare laterborn females and males. The first test conducted was to assess laterborn females. The results were significant, $X^2 = (1, N = 16) = .80, p = .00$. The following proportions of laterborn females that showed more laterborn traits (88%) were greater than laterborn females that showed firstborn traits (13%). The second test conducted was for laterborn males. The results were also significant, $X^2 = (1, N = 20) = .90, p = .00$. The following proportions of laterborn males showing laterborn traits (85%) were greater than laterborn males showing firstborn traits (15%). These results suggest there is little difference between the two groups.

The same tests were used to compare only child females and males. The first test conducted was to assess only child females. The results were not significant, $X^2 = (1, N = 7) = .14, p = .71$. Even though the results were not significant the following proportions of only child females exhibiting firstborn traits (57%) were greater than only child males that exhibited laterborn traits (43%). The second test conducted was for only child males. The results were not significant, $X^2 = (1, N = 7) = .14, p = .71$. Even though the results were not significant the following proportions of only child males showing firstborn traits (58%) were greater than only child males that showing laterborn traits (43%). These results suggest that there is not much of a difference when it comes to comparing the traits exhibited by the only child females and males.

Discussion

In the research, the aim was to find out if past studies held true, such that firstborn and only children individuals expressed traits that are considered traditionally “firstborn”, such as being achievement-oriented, antagonistic, anxious, assertive, conforming, extraverted, fearful, identify with parents, jealous, neurotic, organized, responsible, self-confident, and traditional. Whereas laterborns (this category considered all persons that were not born first in families) express traits that are considered traditionally “laterborn”, such as being more adventurous, altruistic, cooperative, easygoing, empathetic, open to experience, popular, rebellious, risk-taking, sociable, and unconventional.

During the analysis phase of the research, the firstborn group significantly displayed more firstborn traits than laterborn traits. The laterborn group also significantly displayed more laterborn traits than firstborn traits; meaning that both the firstborn group and the laterborn group exhibited the expected traits that past research was shown them to exhibit. The results of the firstborn group and the laterborn group supported the research hypothesis. The difference came in the only child group where past research has said that only children tend to express more firstborn traits because they lack the sibling relationship and base more of their experiences on their parents or guardians, causing them to have a tendency to display firstborn traits. The results here showed that the only child group displayed an equal amount of firstborn traits and laterborn traits.

The question that was asked at the beginning of this research was “Do firstborn individuals, laterborn individuals, and only child individuals essentially display the traits that they have been said to exhibit in past research?” Despite the controversy (some research has shown that there are no significant relationships between birth order and personality traits) surrounding this topic of research, I have been able to find significance in two of the three groups, namely the firstborn and laterborn groups. Interestingly, when I looked within groups I found trends that were not expected. Within the firstborn group, females showed a greater tendency to show traits considered firstborn than firstborn males, while the laterborn group and only child group showed hardly any differences.

Suggestions for future research include a bigger sample size which may help in replicating the trends that were found in this research; there might be greater significance found with a bigger sample size when looking for traits expressed by certain birth orders and also within groups by gender.

As for materials used, potential studies may choose a survey that more in-depth questions on individual personality traits and might also include more about the personality traits said to be expressed by each birth order.

Other variables to look at would be family size, how many siblings a participant has, and years between each sibling to see if that would have a significant effect on their personality development and traits they develop through their lifetimes. An interesting statement made by Harris (1998) was that birth order traits are only expressed in the home around the parents/guardians and may be something to look into; perhaps behavioral observations could be made on individuals while in a home setting compared to outside of the home.

The importance of birth order has been known – or at least suspected – for years. There have been many studies, particularly those executed by Sulloway (1996), that show there is significance in this topic. He has found that elder siblings excel at skills that involve physical contact while younger siblings are the ones who put themselves in harm's way. It is also states in past studies that firstborns have a greater likelihood of becoming lawyers or doctors due to their higher IQs and leadership qualities while the younger siblings have a greater chance at becoming artists, entrepreneurs, etc. due to their ability to “go with the flow”. However, the birth order effect, for all its seeming robustness, it is not indestructible. There is a lot that can throw it out of balance – particularly family dysfunction. The sheer number of siblings in a family can also trump birth order, and larger samples need to be obtained to find any true significance on this topic.

There are many studies showing that people show traits specified for their birth order, but there are also just as many studies disproving this topic. I think the significance of birth order is the traits developed by different birth orders help them maneuver through their family and their life, creating their own lifestyle and their own stylistic way to look and view different aspects of life.

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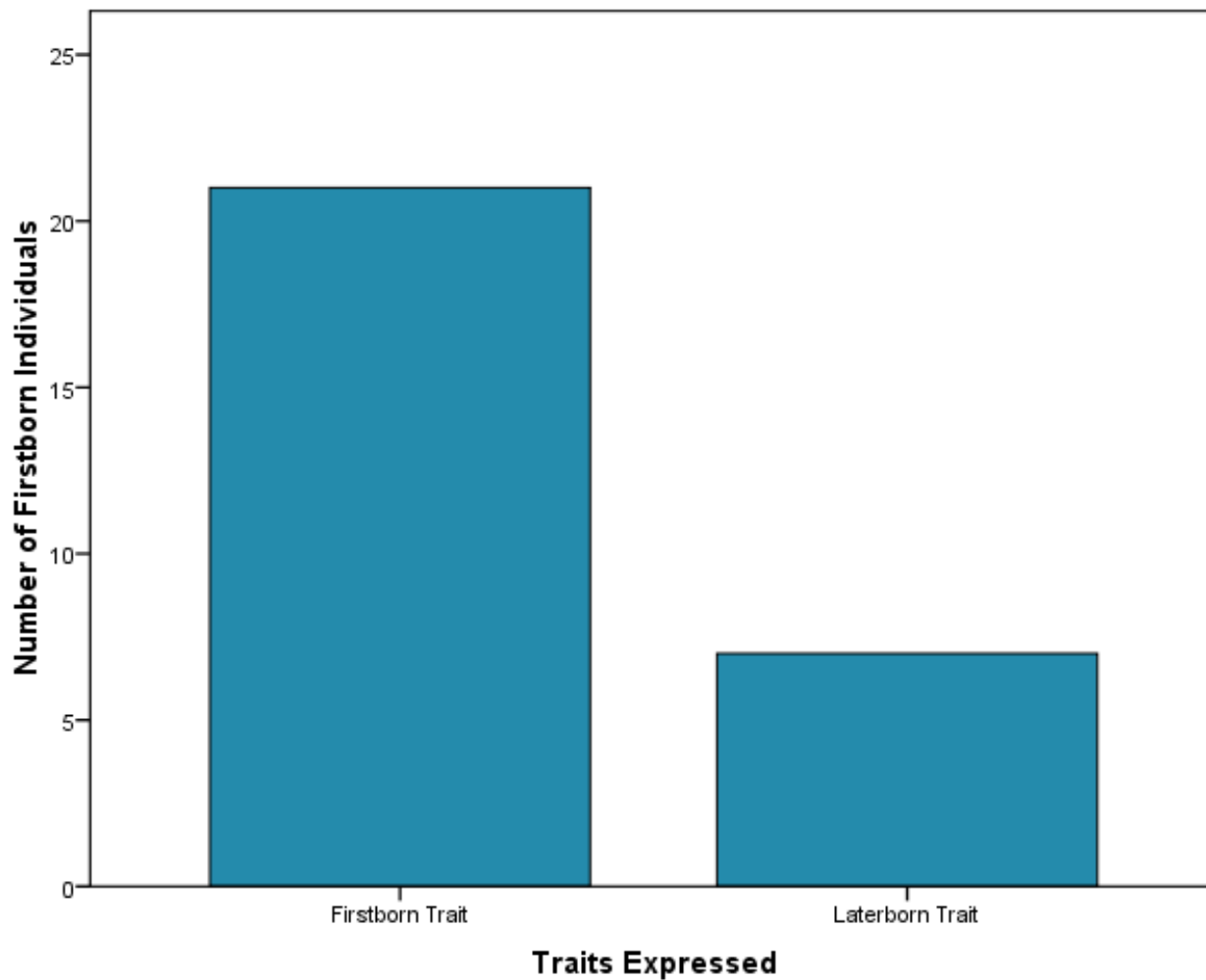


Figure 1. The frequencies of firstborn individuals that expressed firstborn traits, and those who expressed laterborn traits.

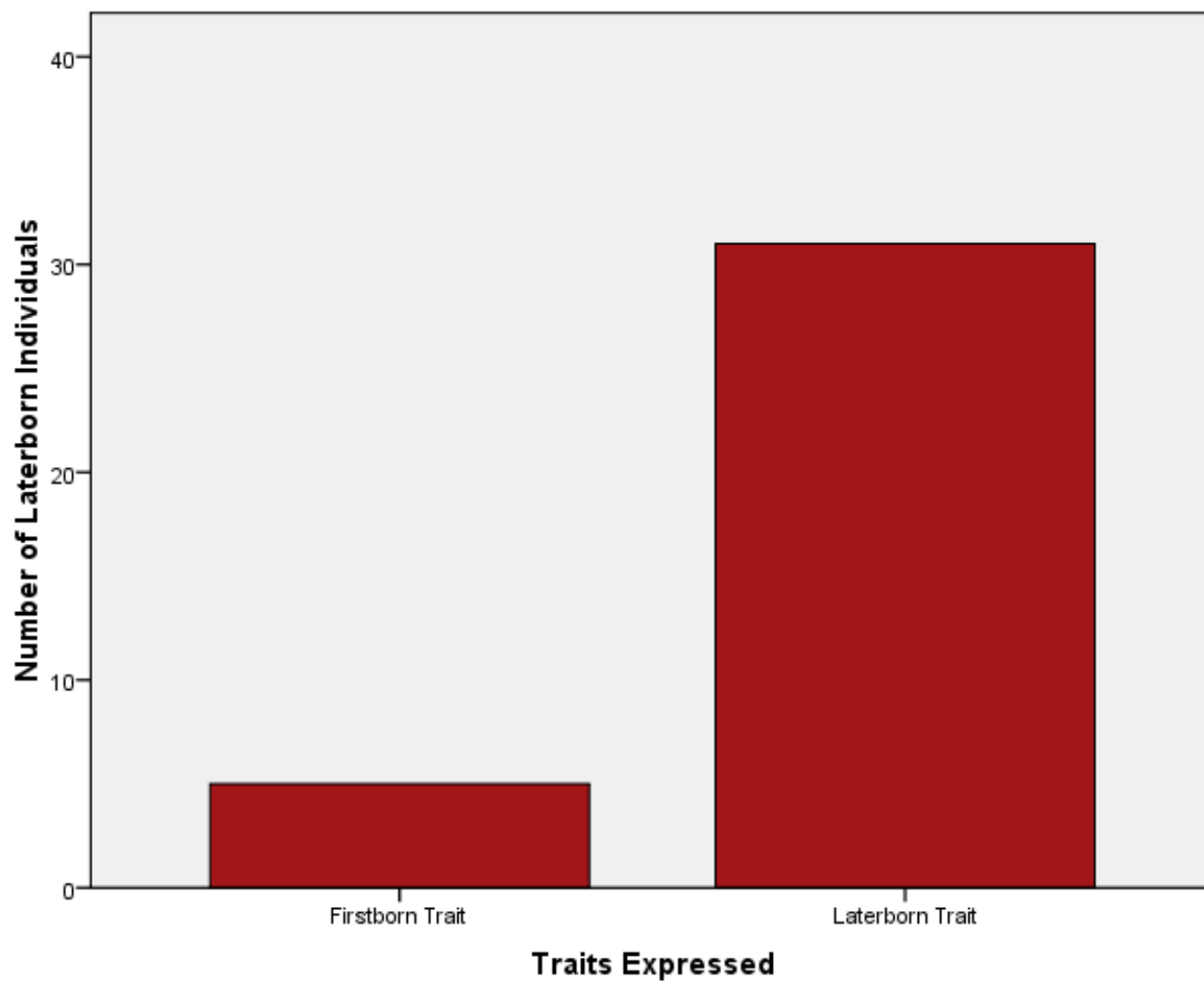


Figure 2. The frequencies of laterborn individuals that expressed firstborn traits, and those who expressed laterborn traits.

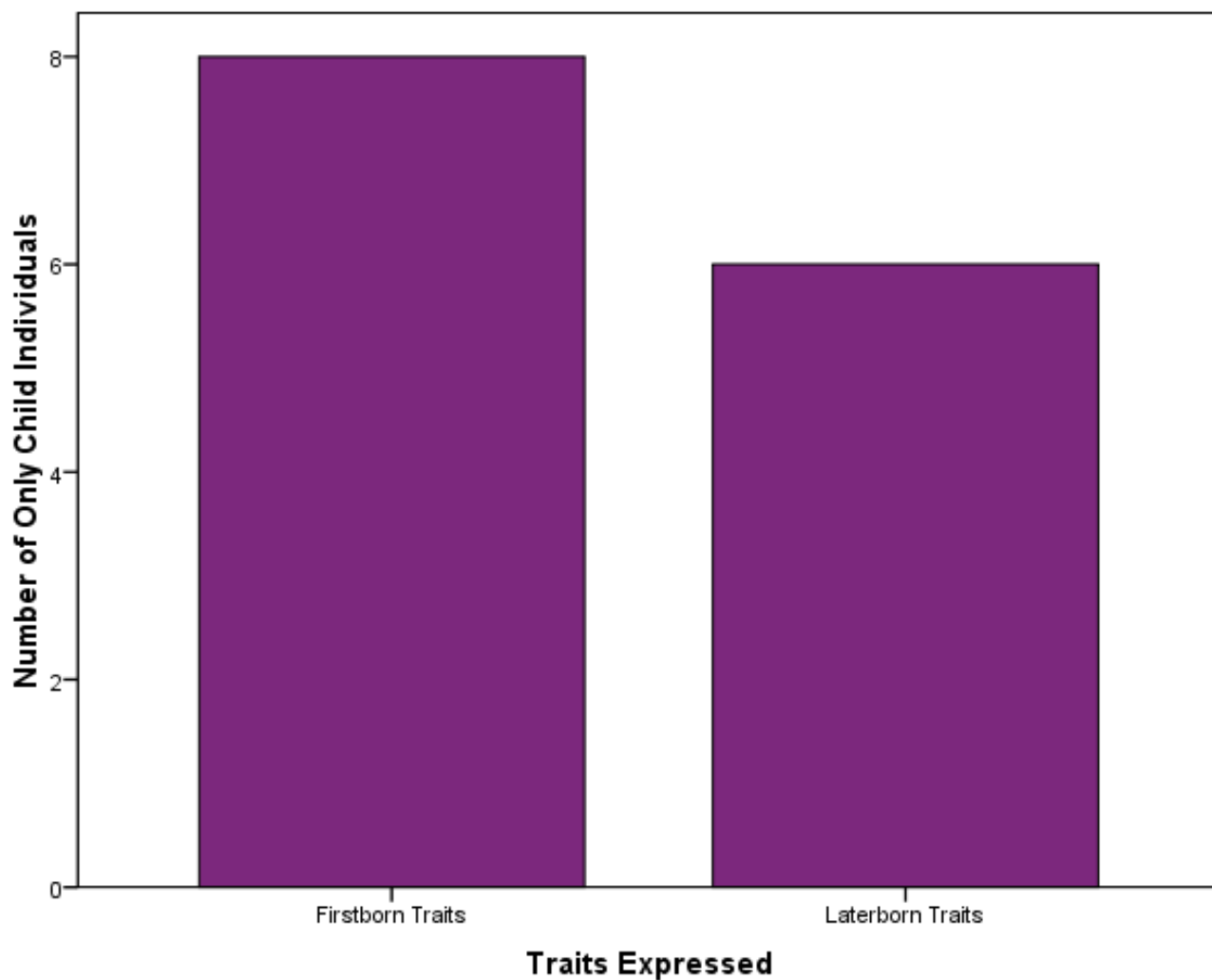


Figure 3. The frequencies of only children individuals that expressed firstborn traits, and those who expressed laterborn traits; the result was insignificant.

German Resistance Movement During World War II

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Abstract: The main argument of this project will be to show that during a very dark period of German history there were those who did not accept, believe, condone, or adhere to the bizarre actions of their leaders. These resisters may have shown their objections by simple means like shopping in Jewish store, but others who defied this tyrannical regime resisted and for many made the ultimate sacrifice with their lives. This paper is not dealing with what some in Germany should have done to halt Adolf Hitler's rise to power, but instead to show that during this time period that there were Germans who did protest the actions of the Nazi Party and the consequences that many paid for their convictions.

This paper will address the July 20th assassination attempt on Adolf Hitler's life. In addition, this writing will mention other resistance groups, but it will focus on the military resistant movement. The main argument of this project will be to show that during a very dark period of German history there were those who did not accept, believe, condone, or adhere to the bizarre actions of their leaders. These resisters may have shown their objections by simple means like shopping in Jewish store, but others who defied this tyrannical regime resisted and for many made the ultimate sacrifice with their lives. This paper is not dealing with what some in Germany should have done to halt Adolf Hitler's rise to power, but instead to show that during this time period that there were Germans who did protest the actions of the Nazi Party and the consequences that many paid for their convictions. The writing will also demonstrate the quandary that the military had to overcome. Unlike the religious or political opposition which based its objections on moral or political differences, the military had to justify their movement as not an act of treason but as an act of nationalism and patriotism.

Polling today does clearly show that the vast majority of Germans do have a very negative opinion of the Third Reich and support Angela Merkel's statement condemning Iranian president Ahmadinejad's ridiculous assertion that the history of the Holocaust needs to be revised (see Appendix A). The statistics revealed the lack of knowledge from 1970 and 1984 about the daring assassination attempt on Adolf Hitler's life, which was just one of 42 assassination attempts on his life (see Appendix B). Several conclusions could be drawn; that Germans just want to forget their past, or the German people do not want to acknowledge that the assassination attempt may have been justified, but was actually an act of treason. Dr Axel Smend the son of one of the July 20th conspirators recalls that when growing up in post war Germany his mother had to go to school because he was fooling around in school and his teacher needed to speak to his mother about this behavior. During the conversation the teacher realized who Dr. Smend's father was and the teacher made the comment, "I guess we should expect this type of behavior from the son of a traitor."ⁱ This type of attitude was not uncommon in Germany after World War II. There wasn't any great yearning for a return to the life under Nazi regime, but Germans did look unkindly upon those who they perceived as traitors to their country not heroes.

Today there is a very different outlook on the July 20th conspiracy. This was the official German comment on the movie Valkyrie, "But the movie has now even got a seal of approval from the German government. Bernd Neumann, the German government's federal commissioner for culture, said in a statement on Monday: "The film contributes successfully towards making this little-known chapter of German history known to an international audience."ⁱⁱ Another example of the changing attitude towards the July 20th assassination attempt is how German schools now incorporate this event as a learning tool: "German foundation Stiftung Lesen wanted to encourage school children to think about civil courage based on the example of Colonel Claus von Stauffenberg, who tried to assassinate Adolf Hitler."ⁱⁱⁱ The Germany of today looks at its past and is learning and finally recognizing that there were those who loved their country and tried to save it from a group of mad men.

Military Resistance

Comprising a resistance group in the military was difficult at first since Adolf Hitler's early reform directives were very pleasing to the German military. On July 20, 1933, Hitler proclaimed Army Law, which superseded civilian courts and restored the tradition of the army being separate under the law. This act was very pleasing to the officer corps. Hitler also promised the military was that he was going to rebuild the army to levels higher than the restricted level imposed by the Versailles treaty. Additionally, he promised the navy that he would begin to construct new battleships that would triple what the Versailles treaty mandated. All of this made the resistance's recruitment push that much more difficult.

On August 2, 1934, Hitler announced that every member of the military must swear an oath of loyalty to him personally. The requirement was made into with the passage of the Law of the Oath of the Wehrmacht (defense force). The oath read, "I swear before God to give my unconditional obedience to Adolf Hitler, fuehrer of the Reich and of the German people, Supreme Commander of the Wehrmacht, I pledge my word as a brave soldier to observe this oath always, even to peril of my life."^{iv} This oath was a dilemma for the soldier; it was common practice for a soldier to pledge loyalty to a commander in chief, but this oath required soldiers to make a more personal commitment. Hitler knew that by having military swear allegiance to him, he made any insubordination or criticism an act of treason. All of these actions were taken before Hitler began eliminating civil rights and committing the early atrocities. He had come to power through legal means, so his authority had to be obeyed. Many of the generals considered the Nazi philosophy reprehensible, but as long as Hitler was fulfilling his promises, none of the generals saw any justification to overthrow his regime.

The undisputed leader of a small group of military resisters was General Ludwig Beck, who became the face of the military resistance against Hitler and the Nazi party. He was recognized as an exceptional leader with a keen and organized mind, a man whose character was unquestionable. Beck held the position of the head of Truppenamt (Department of the Army). He was approached discreetly in a plot to overthrow Hitler in 1936, but he considered the action to be a purely political matter and not a military one. Beck always considered the Nazis a problem and not Hitler, but that thinking changed on

November 5, 1937 when Hitler issued military directives to have the armed forces prepare for war. Beck and the other generals were stunned by the directive and he realized that it was not the Nazis but Hitler who was driving his country to war. These directives caused many in the diplomatic core to protest as well. Foreign Minister Konstantin von Neurath protested to Hitler that his actions would lead Germany into war with Britain and France. Neurath threatened to resign which suited Hitler, who replaced Neurath with Joachim von Ribbentrop. At the same time, 16 generals were forced to resign; 44 others whose loyalty was being questioned were reassigned. This shuffling around of high ranking military officials, along with Hitler's purging of the diplomatic core, all lit the spark which ignited the military resistance movement.

On October 1, 1938, the invasion of Czechoslovakia was being pressed hard by Hitler, but Beck was adamantly opposed to that action. He had sent a series of communications to Hitler asking him to reconsider his decision. Hitler considered Beck's views as pessimistic and rejected them. Beck continued to press his argument that Germany could easily defeat Czechs, but it would draw France, Britain, and even the United States into a conflict, and Germany was not prepared for an extended military clash. Beck was not alone in this endeavor. General Hans Oster, Abwehr (Army Counter-Intelligence) chief of staff was in total agreement with Beck. These two held positions of power that allowed the resistance movement to operate efficiently and able to avoid detection. Oster's position within the Abwehr was able to deflect Gestapo from prying too closely to resistance activities, and Beck's reputation as an honorable man gave him the ability to recruit other top military leaders to join in the resistance movement.

Early setbacks for the military resistance movement against Hitler were attributed to the military triumphs that the German armed forces experienced early in the war. Hitler's popularity soared from 1938 to 1942. German forces experienced victory after victory, and even though most generals detested the Nazi philosophy, they knew that any attempt to remove their commander in chief in this atmosphere would be considered an act of treason. Several assassination attempts were planned, but for a variety

reasons failed. Most did not even get an opportunity to be attempted because of Hitler's erratic schedule. He would constantly change plans at the last moment, which foiled the resistance plans.

All of this changed in the beginning of 1943, as Germany's military fortunes started to take a change for the worst. The forces at Stalingrad under General Friedrich Paulus, commander of the Sixth Army, surrendered to the Red Army on February 2, 1943. The 91,000 who surrendered were starving and suffering from frostbite. Hitler had refused to allow Paulus to retreat, which turned out to be one of history's greatest military blunders. This was the first sign that was recognized by everyone except Hitler that the war was lost. Following his surrender, Paulus took part in radio broadcast urging military leaders to overthrow or assassinate Hitler. Military leaders believed that the longer Hitler remained in power would spell disaster for the German army and the entire nation. German military resistance knew that this was the perfect opportunity to begin planning their operations to bring down Hitler and his entire regime. A series of assassination attempts were planned with the most daring being attempted on July 20, 1944, Operation Valkyrie.

Valkyrie

Operation Valkyrie was not the first serious attempt at an assassination attempt by the military. The first was the 1938 Coup which was planned on the eve of the Czechoslovakia invasion. The plan was to seize key installations and effectively disarm the Nazi paramilitary organizations. The generals, especially Beck, knew that the German people would not rally to support another war. Among the German military that was part of the coup were Chief of the German General Staff at the time, Franz Halder, Field Marshal Erwin v. Witzleben, General Carl-Heinrich von Stülpnagel, and many senior army generals as well as Hans Oster. Unfortunately, the British and the French were also frightened of starting another war, so all parties caved into Hitler's desires and the coup fizzled out. Another attempt was organized by First General Staff Officer, Oberstleutnant Henning von Tresckow, who was appalled by the way the war was being conducted. He considered orders such as the Commissar Order:

In the fight against Bolshevism it is *not* to be expected that the enemy will act in accordance with the principles of humanity or international law. In particular, the *political commissars* of all kinds, who are the real bearers of resistance, can be expected to mete out treatment to our prisoners that is full of hate, cruel and inhuman.

The army must be aware of the following:

1) In this battle it would be mistaken to show mercy or respect for international law towards such elements. They constitute a danger to our own security and to the rapid pacification of the occupied territories.

2) The barbaric, Asiatic fighting methods are originated by the political commissars. Action must therefore be taken against them *immediately*, without further consideration, and with all severity. Therefore, when they are picked up in battle or resistance, they are, as a matter of principle, to be finished immediately with a weapon.

In addition, the following regulations are to be observed:

Operational Areas

1) Political commissars operating *against our armies* are to be dealt with in accordance with the decree on judicial provisions in the area of "Barbarossa." This applies to commissars of every type and rank, even if they are only suspected of resistance, sabotage or incitement to sabotage.^v

Tresckow saw these and orders like them to be clear violations of international law. He then started investigating if any other senior military personnel shared his views and the trail led to Beck. When the German armed forces' fortunes began to decline, plans started to be organized to eliminate Hitler's regime. Tresckow kept trying to get his superior, Feldmarschall von Kluge, to join the conspiracy, who finally consented after the loss at Stalingrad. Tresckow convinced Hitler's staff that he should visit Army Group Centre, where the assassination would take place. Two bombs were placed onto Hitler's plane so that it would explode after the airplane was in the air. Bad luck fell upon the resisters when the detonator worked but the explosives failed to ignite. The resistance did not quit, but two other attempts by Rudolf-Christoph Freiherr von Gersdorff and Axel von dem Bussche failed due to Hitler's erratic schedule. Additionally, the device used to assassinate Hitler was destroyed in an Allied bombing raid.

In the summer of 1943, the military resistance was scattered because of the need for different forces being deployed throughout the European theatre. Responsibility for the assassination had been transferred from Army Group Centre to Olbricht's GAO, in late 1943, but Olbricht was burdened with his own duties and needed a reliable assistant to coordinate the details for Operation Valkyrie. Beck,

Tresckow and other members of the resistance decided on a young Lieutenant Colonel of the General Staff, with whom his staff had worked well in the past, Claus Graf Schenk von Stauffenberg. **He had a reputation with a stellar military record for his actions with the Sixth Panzer Division's campaign's in Poland and France. His service also included 18 month tour of duty during Operation Barbarossa, where he witnessed firsthand the brutality of the SS. His Russian service disillusioned him with the Third Reich. The disaster at Stalingrad further alienated Stauffenberg from Hitler's strategy. As soon as the battle for Stalingrad finished, he asked for a transfer to a new front, and he was sent to the Tenth Panzer Division in Tunisia, just in time to join the last days of the fierce battle of the Kasserine Pass.** On April 7, 1943, his car drove into a mine field and he was seriously wounded. He lost his left eye and suffered injuries to his left ear and knee. He also lost his right hand, and the surgeons had to amputate part of that arm as well as the ring and little fingers of his left hand. The doctors doubted that he would survive; if he did, they thought, he would not regain his sight. Stauffenberg returned home in the early autumn of 1943 for recovery and convalescence. He had been in a military hospital in Munich prior to this time, and there he made his most important contacts with the people preparing a plot to assassinate Hitler.

Operation Valkyrie was originally designed to occur if a serious threat of revolt arose from the millions of slave laborers imported to work in Germany from all the occupied territories. In response to that threat, Hitler ordered the Home Army to develop a General Staff plan for suppressing such an uprising. The plan was given the code name *Valkyrie*. The military resistors would use these plans as part of the coup; they planned to secure Berlin and place their own personnel in vital positions throughout the military hierarchy and critical government offices. *Valkyrie* also planned for a smooth transition from Nazi control to the new government, which would be led by Beck. On July 20, 1944 Stauffenberg would carry the first stage of the coup out by planting a bomb at a meeting at Wolfsschaze. The bomb was concealed in his briefcase which he would place close to where Hitler would be standing. Stauffenberg

was able to arm the bomb, he was able to place his briefcase almost right next to where Hitler was standing, and he was able to exit the conference center before the explosion.

The first stage was the only phase of *Operation Valkyrie* that was a success. Stauffenberg's briefcase was moved just before it detonated so Hitler was not near the bomb when it exploded. The Home Army was deployed in Berlin, and the SS as well as other high ranking Nazi officials were placed under arrest. All seemed to be operating as plan until it was discovered that Hitler had survived the assassination attempt. The commander of the "Grossdeutschland Battalion," the unit responsible for sealing off the government district of Berlin, turned against the conspiracy - but only *after* speaking with Hitler personally. Major Remer, who was part of the conspiracy, first carried out his military orders meticulously. Goebbels, however, put a call through to the Wolfschanze, demanded to speak to Hitler personally, and then handed the receiver over to the awestruck major. Major Remer became Hitler's ardent supporter at once. Hitler personally promoted him two ranks and ordered him to crush the coup with his troops. From one minute to the next Remer went from keeping guard on the Propaganda Ministry to being the man determined to put down the coup.

From this point forward the entire operation unraveled. By the evening of July 20, the conspirators were under arrest. Friedrich Olbricht, Claus Graf Stauffenberg, Albrecht Ritter Mertz von Quirnheim and Werner von Haefen were shot shortly after midnight. In the months to come, 5,000 of the resisters as well as sympathizers were executed. Retribution was brutally carried out and was not just limited to the resisters: "On August 3, 1944, Himmler announced the infamous doctrine of *Sippenhaft*, 'blood guilt.' Under this doctrine, guilt was hereditary because of 'diseased blood.' Guilt extended to all members of the family, including the aged and the very young."^{vi} Luckily the fortunes of war had run out for the Nazis and this doctrine was never fully implemented.

Conclusion

During a very dark period of German history, there were those who did not accept, believe, condone, or adhere to the bizarre actions of their leaders. These resisters may have shown their objections

by simple means like shopping in Jewish store, but others who defied this tyrannical regime resisted and for many made the ultimate sacrifice with their lives. The military resisters were all too aware that their actions could and did result in the death sentences, but these possibilities did not deter these people from their goal of removing Hitler and his regime. The people highlighted in this paper are only a few there were countless others. How could someone like Hitler come to power? The same question can be asked about Pol Pot of Cambodia, Saddam Hussein of Iraq, Radovan Karadzic of Serbian Bosnia, Idi Amin of Uganda, and Mao Zedong of China. Since the beginning of time, there have been despicable individuals that have come to power and committed unspeakable atrocities. Humanity will always be able to combat these tyrants as long as individuals that have been highlighted in this paper are part of our society. In the movie, "Valkyrie", Tom Cruise who portrays von Stauffenberg cried out before being killed by a firing squad, "Long live our sacred Germany!"^{vii} Till the very end von Staffenberg still believed in the righteousness of his country, but he believed that Hitler was destroying the land that he and the resisters loved.

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- ⁱ History Channel documentary, "Valkyrie: The Plot to Kill Hitler",
- ⁱⁱ Spiegel Online International web site, <http://www.spiegel.de/international/germany/0,1518,602336,00.html>
- ⁱⁱⁱ Spiegel Online International web site, <http://www.spiegel.de/international/germany/0,1518,605426,00.html>
- ^{iv} Terence Prittie, "Germans Against Hitler,"
- ^v <http://www.jewishvirtuallibrary.org/jsourc/Holocaust/commissar.html>
- ^{vi} Michael C. Thomsett, "The German Opposition to Hitler"
- ^{vii} *Valkyrie*. DVD. Directed by Bryan Singer. Performed by Tom Cruise and Kenneth Branagh. USA / Germany: United Artists, 2008.

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A. In December 2006, Iranian president Mahmoud Ahmadinejad hosted in Tehran the International Conference to Review the Global Vision of the Holocaust—a seminar seeking to "revise" the veracity of such events. German chancellor Angela Merkel expressed dismay, saying, "I would like to make clear that we reject with all our strength the conference taking place in Iran about the supposed non-existence of the Holocaust." <http://www.angus-reid.com/polls/view/14733>

B. Polling Data

Looking back at the time of the Third Reich, would you say National-Socialism was completely negative, mostly negative, some negative and some positive aspects, or mostly positive?

	2007	1991
Completely negative	21%	17%
Mostly negative	34%	36%
Some negative, some positive	40%	42%
Mostly positive	1%	2%
Not sure	5%	3%

Source: TNS Emnid / Bertelsmann Stiftung

Methodology: Interviews with 1,004 German adults, conducted from Jan. 21 to Jan. 26, 2007. Margin of error is 3.1 per cent. "Germans Assess Legacy of Nazism." Angus Reid Public Opinion.

<http://www.visioncritical.com/category/public-opinion/>
(accessed March 8, 2010).

SCIENCES

An In Vitro Study Investigating Apoptosis Induction of Coelomocytes in the Earthworm *Eisenia hortensis* using a DNA Fragmentation Assay

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Abstract

The aim of this study was to evaluate the effects of *in vitro* exposure to various apoptotic inducers on coelomocytes obtained from the earthworm *Eisenia hortensis*, also known as the European nightcrawler. Specifically this study focused on DNA fragmentation as a resultant of an induction of apoptosis. Results from this study indicate that earthworm coelomocytes have the ability to induce apoptosis at a time of distress caused by the addition of hydrogen peroxide. Apoptotic inducers such as dexamethasone, camptothecin, actinomycin D, etoposide, and cycloheximide have all been proven to induce apoptosis in other species. It is hypothesized that if these inducers can induce apoptosis in other species such as vertebrates then they might also induce an apoptotic pathway in an invertebrate such as the earthworm *E. hortensis*. Seven assays were conducted testing all five of the apoptotic inducers exposing the cells to the cytotoxic drugs at different time intervals. Apoptotic DNA was isolated and run on an agarose gel to observe the pattern of DNA laddering. Following gel electrophoresis and staining of the agarose gel the DNA Markers were visible as 2000, 1500, 1000, 750, 500, 300, 150, and 50 base pair fragments. From the seven assays, about 60% showed that camptothecin and dexamethasone were the predominant inducers due to the appearance of DNA laddering in the gel.

Unexpected DNA laddering appeared within our negative control in multiple assays forcing the idea that there is another entity causing the induction of apoptosis within the healthy coelomocytes. The phenomenon of allorecognition could be this underlying cause of the false induction of apoptosis. This event occurs between different earthworm cells causing the cells to recognize and subsequently reject each other, therefore resulting in cell death. To solve this problem individual earthworms were extruded

separately by not coming into contact with another earthworm. To test this hypothesis an assay was conducted with cells from individual earthworms that had not come into contact with other earthworm cells as well as a mixture of pooled earthworm cells to simulate conditions in an alloreactive response. Through this we could then show how viable the cells are separately compared to pooled together to prove if there is any alloreactivity between the cells. Unfortunately the results of this assay were inconclusive.

Introduction

Invertebrates are some of the most abundant creatures on earth and have been around for millions of years living in every type of habitat. Many choose to study invertebrates based upon this fact enabling scientists to explore the level of conservation of different cellular processes such as apoptosis between vertebrates, invertebrates and even plant species. *E. hortensis*, also known as the European nightcrawler, is an invertebrate that belongs to the phylum *Annelida*. These worms have an innate form of immunity and an ability to extrude a copious amount of coelomocytes, which are white blood cell equivalents.¹⁷ Coelomocytes play a key role in the defense mechanisms that are part of the immune system. These coelomocytes, which provide much ecological importance, are the earthworm's protection against microbes and foreign entities found within the soil in which they live in. Coelomocytes are immune cells that are obtained through the dorsal pores of the coelomic cavity and are divided into three different groups: the hyaline amoebocytes that are phagocytic, the granular amoebocytes that establish NK-like activity, and the eleocytes that display lytic activity.¹⁹ These cells can undergo many different cellular responses to help maintain the health of the earthworm such as the cellular response known as apoptosis.

Apoptosis, or programmed cell death, is a critical factor promoting many biochemical events in different organisms such as plants, fungi, bacteria, vertebrates and invertebrates. This specific cellular response also plays a very important role in the physiological and pathological growth of humans. The main objective of this innate cellular response is to remove cell debris that may be infected with foreign particles such as viruses, promote tissue development, maintain homeostasis, and to promote cell defenses for the immune system. For example, cells that undergo apoptosis during embryonic development help

separate individual toes and fingers during the growth of the embryo. These structures are sculpted through the event of apoptosis when cells that are no longer needed between them die.² Apoptosis is illustrated by morphological events within a cell including cell shrinkage, chromatin condensation, deterioration of mitochondria, DNA fragmentation, and enzyme activation.⁶ DNA fragmentation is a resultant of apoptosis due to the activation of cellular proteases, including caspases and nucleases, which results in the degradation of nuclear DNA to nucleosome-sized fragments.¹⁸

Apoptosis has been closely examined in many vertebrates and in some invertebrates such as the marine worm *Themiste petricola* (Sipuncula). In this specific study apoptosis was induced by adding a low concentration (100mM) of hydrogen peroxide to earthworm coelomocytes for incubation periods ranging from 30min to 5 hr. Hydrogen peroxide is known to induce apoptosis, but there are many other factors that may enhance programmed cell death. These factors include temperature, environmental pollutants such as heavy metals, infection by a parasite, and the exposure to cytotoxic drugs. There are many cytotoxic drugs that are known to induce apoptosis in vertebrates, but they have yet to be proven to induce apoptosis in invertebrates. These drugs include actinomycin D (10mM), camptothecin (2mM), cycloheximide (100mM), dexamethasone (10mM), and etoposide (100mM).

Camptothecin which is a known apoptosis inducer inhibits the topoisomerase-I enzyme activity of deoxyribonucleic acid.¹⁶ The significance of the topoisomerase-I enzyme is that it facilitates the breaking and reunion of the double-stranded DNA which when inhibited can lead to apoptotic characteristics. Camptothecin, in this manner, specifically causes breaks in the double-stranded DNA during synthesis or replication of the DNA.¹¹ Molecularly the camptothecin results in a complex which involves DNA and topoisomerase-I where 3'-OH is covalently attached to topoisomerase-I, which results in a double-stranded break in the DNA.¹³ This can be exemplified through condensation of the chromatin involved, blebbing of the plasma membrane, cytoplasmic shrinking, and most significantly, DNA fragmentation.

The chemical actinomycin D is known to be an apoptosis inducer through inhibition of the ribonucleic acid and protein synthesis of the cell it is affecting.^{1,12} Actinomycin D has a selective nature in which it targets proliferating cells and induces destruction of that particular cell. This cytotoxic attribute

in turn leads to denaturation of the deoxyribonucleic acid. This has been seen to affect vertebrate cells, specifically cells of a rat *in vivo*.¹⁵ Nonproliferating liver cells of a rat were tested with actinomycin D which led to the cytotoxic impact and inhibition of ribonucleic acid synthesis involving DNA-dependent RNA polymerase. Although the main attribute of actinomycin D is to inhibit RNA synthesis, it mainly affects the DNA through its cytotoxic nature.

Cycloheximide is an apoptosis inducer through inhibiting protein synthesis within the cytoplasm in eukaryotes. This involves deleterious effects in relation to inhibition of the cytoplasmic protein synthesis with a particular cell of a eukaryote. The inhibition of the cytoplasmic protein synthesis is relative to the ribosomes within the cytoplasm.⁵ Cycloheximide specifically inhibits the processes of elongation, initiation, and termination involving protein synthesis of a living cell while increasing tumor necrosis factor alpha. This inhibition contributes to DNA denaturation along with inhibition of cellular respiration, amino acid uptake, pyrimidine nucleotide synthesis, and ion adsorption.³ Cycloheximide has been used within plants where these processes exhibited, particularly protein synthesis inhibition had occurred which implicated the ripening of pears.¹⁴

Dexamethasone is another apoptosis inducer also known as a glucocorticoid. The significance of dexamethasone being a glucocorticoid is that it contributes to activation of the apoptosis pathway which was tested *in vivo*. Attributes of this mechanism involved retardation of certain cell types. Cell types that can be affected are immune cells such as T helper cells which involve the decrease in anti-apoptotic proteins such as BCL-2 and BCL-X. For example, studies have shown that treating rats *in vivo* with dexamethasone causes decreases in BCL-2 and BCL-X proteins in T cells.⁸ This also showed that dexamethasone-treated cells had altered caspase activity in T helper cells. In contrast, our investigational study with the *E. hortensis* will analyze the effects of dexamethasone on coelomocytes *in vitro*.

Etoposide exerts its effects by inhibiting DNA topoisomerase II which is essential for protection against tumor cells. It was considered an antitumor agent that was induced from a DNA damage event which was tested through preclinical and clinical studies that involved cancerous cells.²⁰ Through etoposide inhibiting topoisomerase II, apoptosis is induced with an association with different tumorigenic

cell lines. This can be involved with activation of p53 activity from the result of DNA damage. DNA damage was proven through DNA chip technology which showed that there was a significant change in the gene expression of the DNA that was damaged.²⁰

Hydrogen peroxide is the final apoptotic inducer that will be used to observe programmed cell death in coelomocytes. This inducer will also serve as the positive control in all assays due to the fact that hydrogen peroxide is known to cause programmed cell death in many cells including coelomocytes obtained from marine worms. Hydrogen peroxide is believed to induce its effects on cells through the depolarization of the mitochondrion.⁶ Once coelomocytes are exposed to hydrogen peroxide, the effects can be analyzed through DNA agarose gel electrophoresis. DNA obtained from treated coelomocytes are exposed to gel electrophoresis and analyzed for the appearance of DNA fragmentation.

DNA that has been extracted from apoptotic cells is exposed to gel electrophoresis where a certain pattern known as “DNA laddering” is demonstrated. This pattern exhibits the endonucleolytic cleavage (cutting both strands) of DNA during programmed cell death where the DNA is cleaved between nucleosomes in 200 bp intervals.⁹ This cleavage of genomic DNA occurs at internucleosomal sites on the DNA double helix. Recent studies have used DNA fragmentation to detect the initiation of apoptosis in the event that cells are exposed to certain apoptotic inducers including camptothecin, cycloheximide, and etoposide. Specifically this experiment used Jurkat and HL-60 cells that were exposed to cycloheximide, camptothecin, or etoposide for an incubation period of 4-8 hr.¹⁰ Results from this study showed the pattern of DNA laddering within a gel indicating the induction of apoptosis due to the apoptotic inducers that were added to the cells. The control (lane C) in this gel does not appear to contain any DNA which is due to the picture not showing the wells of the gel where the high molecular weight DNA is located showing that DNA fragmentation is not occurring in the negative control. These results show that these apoptotic inducers can initiate apoptosis in vertebrates but the question is can the cytotoxic drugs also induce apoptosis in invertebrates such as the earthworm *E. hortensis*.

Methods

Animal Habitat

E. hortensis, also known as the European nightcrawler (Vermitechnology Unlimited) is the model earthworm for all assays being conducted. Earthworms were stored in the dark in plastic containers containing moistened autoclaved wood shavings and shredded paper towels. They were fed Gerber baby food cereal every few days as their bedding material was changed. Earthworm coelomocytes were obtained through an extrusion process where the earthworms were either returned to their habitat intact or euthanized by freezing at -20°C.

Extrusion of coelomocytes

To begin all assays, earthworm coelomocytes were first obtained through a method known as the extrusion process. This process entails the ejection of coelomocytes from the coelomic cavity where the cells exit through the dorsal pores on the body of the earthworm, once the worm has become irritated with a buffer solution. Earthworms were placed into Petri dishes that contained saturated filter paper with a 1:100 solution of Fungizone (2.5µg/ml; Fisher Scientific) for an overnight incubation period in the dark. The purpose of Fungizone was to eliminate any possible fungi contamination to the coelomocytes due to wastes caused by the earthworms and habitat material.

The following morning, either individual earthworms or batches of earthworms were submerged in 5ml ice cold extrusion buffer (71.2 mM NaCl, 5 % v/v ethanol, 50.4 mM guaiacol-glyceryl-ether, 5 mM EGTA, pH 7.3) to obtain coelomocytes. If the earthworms were not responding to the extrusion buffer (meaning they were not releasing their cells), another method was used that involved electric shocking the earthworms with a 9-V battery. Once the earthworms appeared to be done extruding, the cells were removed and placed into a 15ml conical tube containing 1ml of Accumax which is an enzyme cocktail containing trypsin, collagenase and DNase (Innovative Cell Technology). Cells were then incubated at room temperature for 5 minutes to prevent them from clumping together. After the 5 min incubation period, 7ml of ice cold phosphate buffered saline (PBS) (0.2M potassium phosphate, 1.5 M sodium chloride, pH 7.2) was added to the cells to dilute the Accumax enzyme and the cells were then stored on ice. The cells were then centrifuged at 150xg, 4°C, for 5 minutes to pellet all intact cells from the solution. The supernatant was then poured completely off the pellet and the pellet was flicked to

loosen the cells. Cells were then resuspended in 1ml Super Dulbeccos Modified Eagle Medium (SDMEM) which contained 10% fetal calf serum, 1x nonessential amino acids, 1x L-glutamine (Gibco), 1x streptomycin/penicillin/amphotericin B, 100 µg/ml ampicillin (Shelton Scientific), 10 µg/ml kanamycin (Shelton Scientific), 10 µg/ml tetracycline, 5 µg/ml chloramphenicol (Fluka Biochemika), and 15mM HEPES buffer. The quality and quantity of the cells was determined by using hemacytometry and an inverted phase-contrast microscopy. The cells were chosen based upon the quality score ranging from poor to superior (1~10) based upon the proportion of eleocytes. Cells were also chosen based upon their quantity score where the highest yielding batch of earthworms was chosen.

Suicide Track™ DNA Ladder Isolation Kit Protocol

The Suicide Track™ DNA isolation kit was purchased through Calbiochem®. After the cells were enumerated on the hemacytometer, the highest quality of cells were chosen following the dilution of the cells to the desired concentration by using the equation of total cells divided by the desired concentration of cells giving you the amount of SDMEM in ml to add to your cells. The desired concentration of cells needed for these assays ranged from 0.5×10^6 to 1×10^6 cells/ ml⁻¹. The concentrations of the chosen cells were altered to achieve the desired amount of cells that will be placed into each well within a 12-well plate. To all twelve wells 1ml of cells was added. Once the cells were added to the plate they were then stored in the 20°C, 5% CO₂ humidified incubator for a short recovery time. Apoptotic inducers were then added to the appropriate wells at a 1:250 dilution from their original concentrations. These apoptotic inducers were purchased through BioVision™ as a Ready-to-use Apoptosis Inducer Set which included actinomycin D (40M), camptothecin (8M), cycloheximide (400M), dexamethasone (40M), and etoposide (400M). Hydrogen peroxide (30%) (Fisher Scientific) was used as a positive control at a 1% concentration. Another positive control used with this assay was provided by the Suicide Track™ DNA Ladder Isolation Kit that contained 1×10^6 HL60 cells that were treated with 0.5mg/ml actinomycin D for 19 hours. This sample was defrosted and processed in the same manner as the other samples beginning with the isolation of total DNA. A negative control was also used where cells were either not treated with any type of drug or they were treated with DMSO (Peirce). Cells were

then exposed to the inducers by adding 1ml of the diluted solution (SDMEM & inducer) to each labeled well. Once all the inducers were added the cells were then placed back into the 20°C, 5% CO₂ humidified incubator for an O/N incubation period.

The next day, the cells were removed from the 12-well plate and placed into a 1.5ml Eppendorf tube being sure to remove all cells from the plate due to the fact that they often stick to the corners and bottom of the plate. Cells were then centrifuged at 1000xg for 5 min at room temperature to pellet all intact cells. The supernatant was then poured off of each tube. Procedure 2 found in the Suicide Track™ DNA isolation kit was then followed to isolate total DNA. Cells were gently resuspended in 55µl of solution #1 (lysis buffer) following the addition of 20µl of solution #2 (RNase A) where the cells were then incubated at 37°C for 1 hr. After 1 hr. 25µl of solution #3 (proteinase K) was added to the cells where they were then incubated for 1 hr at 50°C in a waterbath. Cells were removed from the waterbath and 500µl of resuspension buffer was added to the cells. To precipitate the DNA, 2µl of Pellet Paint® was added as a co-precipitant. Following this was the addition of 60µl of 3M (0.3M final) sodium acetate (pH 5.2) being sure to mix the solution briefly. Then 662µl of 2-propanol was added to the cells where at this time cells were frozen and stored at -80°C to start the assay again another day. When freezing the DNA and beginning the assay another day the samples were removed from the freezer and placed on ice to allow time for them to defrost. Once samples were defrosted, they were centrifuged at 15,000-16,000xg for 5 min where a pink pellet formed at the bottom of the tube. The supernatant was removed with a pipet tip. Once the supernatant was removed, the DNA pellet was rinsed with 500µl of 70% ethanol, then centrifuged again at 15,000-16,000xg for 5 min. The supernatant was removed again with a pipet tip, then 500µl of 100% ethanol was added and sample was centrifuged at 15,000-16,000xg for 5 min. The supernatant was removed with a pipet tip and samples were allowed to completely air dry in an inverted fashion on the benchtop at room temperature. When samples appeared to be completely dried, they were resuspended in 50µl of resuspension buffer and placed on ice until they were ready to be exposed to DNA gel electrophoresis.

An Alternative Method for the Isolation of Total Apoptotic DNA

A new protocol was produced for isolating apoptotic DNA which entailed the creation of all solutions to be used within all of the remaining assays. This new protocol was produced due to the fact that the Suicide Track™ DNA Ladder Isolation Kit could only carry out 25 extractions therefore all the solutions in this kit were used. The new protocol followed the same guidelines found in Hermann *et al.* (1994) with the main goal of isolating apoptotic DNA fragments induced by IL-2 deprivation.¹² Once coelomocytes were obtained through the extrusion process they were counted via hemacytometry and given a quality score where the best yielding cells were chosen. Cells were then treated with either the apoptotic inducers, H₂O₂ (positive control), or DMSO (negative control) and placed into a V-bottom 96-well plate. The cells were then incubated at different incubation periods ranging from an overnight incubation period to an 8hr incubation period in a 30°C, 5% CO₂ humidified incubator. After the incubation period, the plate was then spun down at 1000rpm for 10mins at 4°C. Following the centrifugation of the cells the plate was then “flicked” into the sink to remove all supernatant from the wells without disturbing the cells. The plate was then vortexed to resuspend the pellet in each well. Using a multichannel pipettor 40µl of lysis buffer (1% NP-40, 20mm EDTA, 50mm Tris-HCL pH 7.5, and dH₂O) was then added into each well. Like cells were then pooled together (e.g. all lysis buffer within the negative control wells are placed into one eppendorf tube). Once all the cells were removed from the plate, cells were then spun in the microcentrifuge at 1600xg for 5mins to pellet any cell debris. The supernatant was then transferred to a new eppendorf tube. Another 40µl of lysis buffer was then added to the original eppendorf tube containing the pellet. Cells were then microcentrifuged again at 1600xg for 5mins and the supernatant was then pooled with the other supernatant. The pellet was then discarded and 50µl of 5% SDS (final concentration of 1% SDS) was added to the supernatant. At this time the cells were frozen and stored at -80°C. The cells were then removed from the freezer and placed on ice to allow time for them to defrost. Once cells were defrosted RNase A (Fermentas Life Sciences) was diluted to a 1:100 dilution and was added to each sample for a final concentration of 5 µg/ µl. Cells were then incubated in a waterbath for 2hr at 56°C. Then Proteinase K (20mg/ml) was added to each sample with a final concentration of 2.5 µg/ µl and incubated for 2hrs. at 37°C. Cells were then removed from the

incubator and ½ vol. of 10M Ammonium Acetate (NH₄OAc) was added to each sample and mixed with a pipette. Finally, 2.5 vol. of 100% ethanol was added to the samples to facilitate nucleic acid precipitation. The cells were then washed with 70% ethanol by spinning the tubes in the microcentrifuge at 16,000xg (16,110Xg) for 15mins. to pellet all cells. The supernatant was then poured off and the pellet was dried. To each pellet 21µl of TE buffer (10mM Tris-Cl, 1mM EDTA, pH 7.5) was added (Bio-Rad) where the samples were then vortex followed by a quick spin in the microcentrifuge to bring down solution. Samples were then incubated at 37°C for ~5mins. to allow the pellet to completely dissolve into solution. They were then removed from the waterbath and vortexed again followed by another spin in the microcentrifuge to bring down any insoluble material. For the DNA double-staining method, the loading dye was prepared by placing 99µl loading dye + 1µl SYBR® safe gel stain into separate eppendorf tube then adding 4µl of this mixture to each sample. DNA molecular weight markers were prepared (Fisher Scientific) by placing 10µl MW marker + 2µl SYBR® safe gel stain into a separate eppendorf tube. Cells were placed on ice followed by preparation of the agarose gel.

DNA Gel Electrophoresis

For the DNA gel electrophoresis section, 10X Tris-borate EDTA (TBE) loading buffer (Promega) was used to run all gels and was also used to create all gels. TBE loading buffer was diluted to a 1X concentration by mixing 900ml of dH₂O with 100ml of TBE in a 1000ml Erlenmeyer flask which was then covered and stored on the lab bench at room temperature. Agarose gels (0.75% - 1.5%) were created by combining 50ml of 1X TBE buffer with the desired amount of High Strength Analytical Grade Agarose (Bio-Rad) in a 250ml Erlenmeyer flask. This solution was heated until the agarose was completely dissolved in the TBE buffer. The solution was then cooled to the touch and 10µl of 10,000X SYBR® safe DNA gel stain (Invitrogen) was added to the gel. After adding the gel stain the solution was swirled gently to distribute gel stain throughout the entire solution. The gel was then poured into a prepared electrophoresis chamber and a gel comb was positioned to form sample wells in the gel. After the gel had completely solidified the comb was removed and the gel was placed into the gel buffer tank. Once the gel was correctly placed into the tank, enough TBE buffer was added so the surface of the gel

was completely covered. The DNA samples were subjected to a pulse spin to bring down any condensation in the tube then, 21µl was transferred into a fresh Eppendorf tube. To these tubes 4µl of 6X gel loading buffer was added being sure to fully dissolve the pink pellet into the solution, and the samples were loaded onto the gel being sure to note what each well contains. The DNA molecular weight markers were subjected to a pulse spin and 5µl was loaded onto the gel. Once all samples were loaded onto the gel the lid was assembled and the leads were attached allowing the DNA to migrate toward the positive lead (red/anodic). The gel was run at ~120 volts until the dye front was 1-2cm from the bottom of the gel. The gel was removed from chamber and photographed using a Gel-Document System (Bio-Rad).

Results

Results from the first couple of assays concerning the apoptotic inducers were inconclusive due to the fact that the wells appeared to be lacking DNA. **Figure 1** shows that there was no sign of DNA laddering within the wells containing the negative controls or the treated cells. This finding is most likely due to the loss of the pellet during the ethanol washing stage. The reasoning behind this is that the pellet may have been too small to see with the naked eye. A solution to this problem is to raise the amount of cells needed for the assay from 0.5×10^6 cells to 1×10^6 cells which may result in a larger pellet.

The lack of DNA during gel electrophoresis continued to become a problem but as the concentration of the cells was increased results became more promising due to the appearance of DNA fragmentation within the wells unlike all the other assays that had been conducted. **Figure 2** and **Figure 3** displays these results by illustrating the DNA laddering pattern within cells that were treated with the apoptotic inducers. **Figure 2** shows unexpected DNA laddering pattern in the negative control. This was an extremely unexpected event due to the fact that these cells are assumed to be healthy. The only explanation for this phenomenon is that the tubes could have been mislabeled or mixed up when adding the samples to the well, or there is a lot of spontaneous apoptosis occurring. Reasoning behind this conclusion is based upon the results of the hydrogen peroxide. The well that contained the cells treated with hydrogen peroxide appeared to have little DNA due to the fact that there is no visible DNA laddering pattern occurring. In fact there appears to be no sign of DNA in the high molecular weight portion of the

gel therefore forcing the idea that there just wasn't enough DNA in the sample or that it was really the negative control. The DNA ladders did not appear on the gel which is most likely due to a low concentration. **Figure 2** also shows that high molecular weight appears to be stuck in the wells meaning the pellet is not being completely dissolved and distributed in the TE buffer. This might be avoided by pipetting the solution gently a few times before adding the DNA sample into the gel. For the next assay samples will be kept labeled at all times to ensure they do not get mixed up.

Overall, 3 of the inducers seemed to have induced some form of apoptotic pathway on the earthworm coelomocytes due to the appearance of DNA laddering in the gel (**Figure 4**). These inducers included dexamethasone, cycloheximide, and camptothecin. Actinomycin D however did not induce any DNA laddering where the issue of a low concentration of DNA is not a factor due to the high molecular weight band around 1000bp. Reasoning why it didn't induce apoptosis could be due to a mistake in the dilution process resulting in the cells not receiving enough of the drug. It is apparent that the negative control is somehow becoming contaminated in all of these assays due to the fact that the negative control is once again displaying DNA laddering within the gel (**Figure 4**), therefore we cannot conclude if the inducers are having any effect. This phenomenon pushes the idea that there is another entity causing the induction of apoptosis on the healthy coelomocytes. One factor that could be causing this problem could be allorecognition between the different earthworm cells causing the cells to recognize and subsequently reject each other, therefore resulting in cell death. Earthworm cells are polymorphic because they are not produced through an inbred population, therefore earthworm cells possess polymorphism. To solve this problem individual earthworms could be extruded separately. By not pooling the earthworm coelomocytes together this would eliminate any form of allorecognition between different earthworms and we could then focus on the affects of the cytotoxic drugs.

Conclusion

Among the five apoptotic inducers, dexamethasone and camptothecin were the two predominant inducers. Throughout the assays that actually worked dexamethasone and camptothecin appeared to induce an apoptotic pathway resulting in the pattern of DNA laddering. Even though these inducers

appeared to have worked well it is difficult to conclude if the results really show an apoptotic pathway being induced via the cytotoxic drugs or if the DNA is being degraded in another manner due to another entity. All assays conducted have resulted with a negative control containing DNA laddering therefore it is not certain that the apoptotic inducers are in fact inducing an apoptotic pathway. All reactivity could be one of the reasons why there is DNA laddering in the negative control therefore having a greater impact on the cells than we might think. To solve this issue earthworms will not be extruded in batches in any future assays. Instead individual earthworms will be extruded separately avoiding any exposure with other earthworm cells. Based upon the unexpected laddering found in the negative control it is also believed that the ethanol in the extrusion buffer could be inducing apoptosis in earthworm coelomocytes.⁷

Future Directions

In future studies various extrusion methods could be tested focusing on individual coelomocyte populations via flow cytometry. Specifically the TUNEL assay (Terminal deoxynucleotide transferase dUTP Nick End Labeling) will be used to identify DNA fragmentation of apoptotic cells. The TUNEL assay does this by targeting the 3'OH groups found on the broken ends of damaged DNA.⁴ Breaks in the DNA allow the attachment of terminal deoxynucleotidyl transferase (TdT) at the 3'OH site on the DNA strand resulting in the addition of deoxyribonucleotides. To the same location another structure is added known as a deoxythymidine analog 5-bromo-2'-deoxyuridine 5'-triphosphate (BrdUTP) that serves as a label for the break sites on the DNA strand. When analyzed on the flow cytometer a anti-BrdU antibody is used to identify the breaks on the DNA stand. One of the major advantages of this form of analysis is to identify and quantify different cells populations undergoing various stages of apoptosis. Data can then be associated with the different treatments that the cells received allowing us to conclude which extrusion method is the best and does not kill the cells in the process. Once the best extrusion method is chosen, then the apoptotic inducers can be truly tested.

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Appendix

M P C E H P C E H P C E H

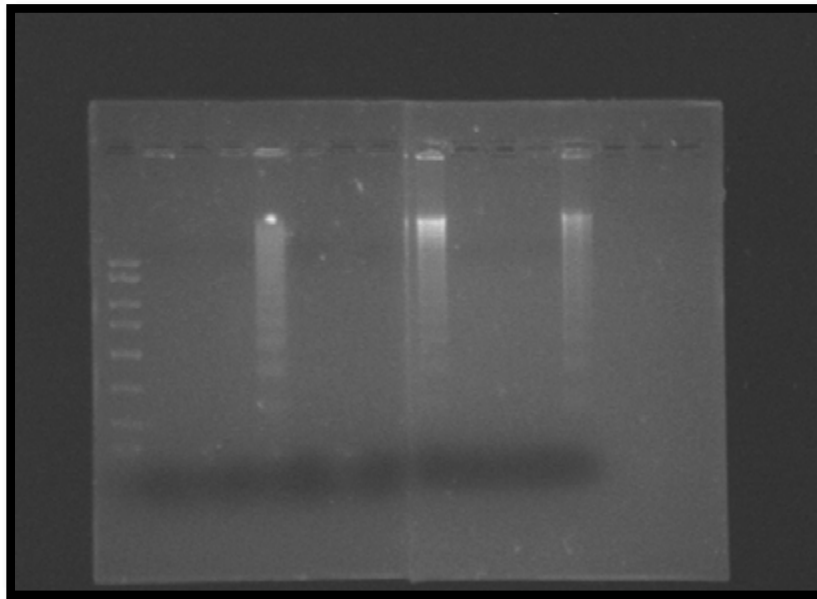


Figure 1: Earthworm coelomocytes were treated with various inducers for an O/N incubation period and DNA was isolated and run on 0.75% agarose gels. Lane M (molecular weight markers in bp: 2,000; 1,500; 1,000; 750; 500; 300; 150 and 50), Lanes P (untreated batched cells), Lanes C (batched cells treated with camptothecin), Lanes E (batched cells treated with etoposide), and Lanes H (batched cells treated with hydrogen peroxide).

M 1 2 3 4 5 6 7

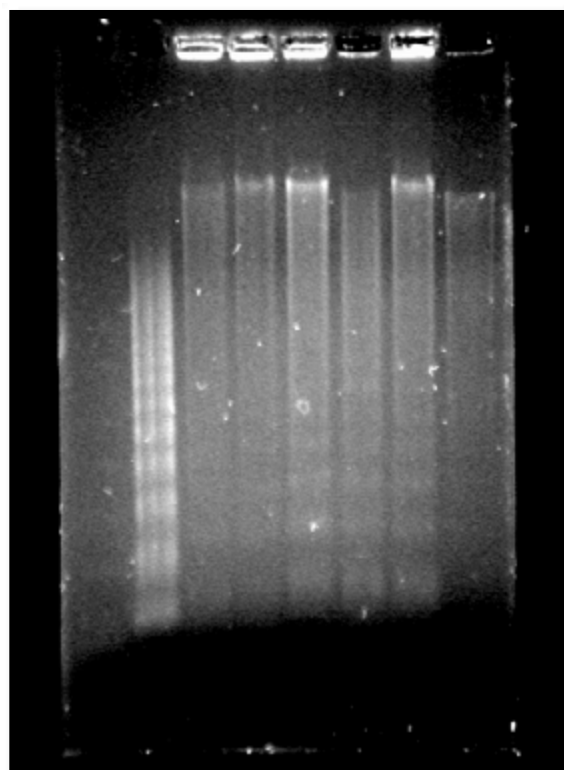


Figure 2: Earthworm coelomocytes that were exposed to various apoptotic inducers where the DNA was isolated and run on a 1.2% agarose gel. Lane M (molecular weight markers in bp: 2,000; 1,500; 1,000; 750; 500; 300; 150 and 50), Lane 1 (HL-60 cells treated with actinomycin D), Lane 2 (untreated batched cells in the presence of DMSO), Lane 3 (batched cells treated with cycloheximide), Lane 4 (batched cells treated with etoposide), Lane 5 (batched cells treated with camptothecin), Lane 6 (batched cells treated with dexamethasone), and Lane 7 (batched cells treated with hydrogen peroxide).

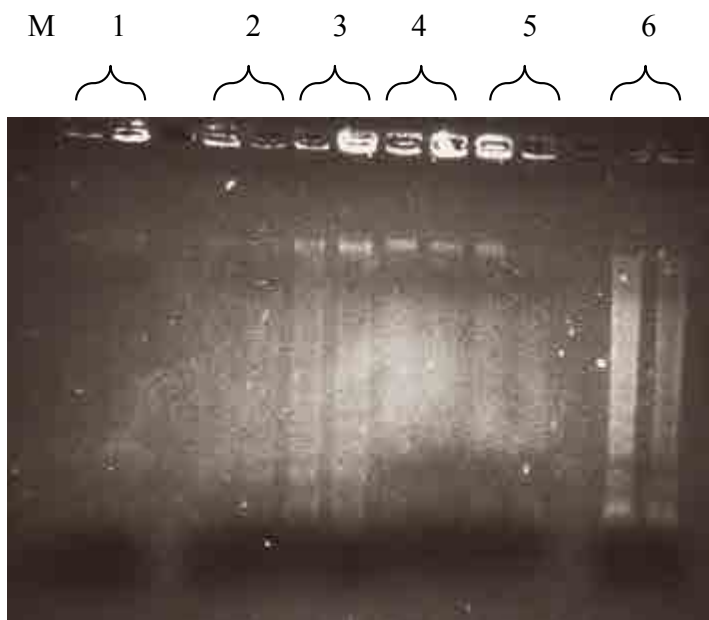


Figure 3: Coelomocytes obtained from the extrusion of batched earthworms then treated with various apoptotic inducers and the DNA was isolated and run on a 1.2% agarose gel. Lane M (molecular weight markers in bp: 2,000; 1,500; 1,000; 750; 500; 300; 150 and 50), Lanes 1 (batched untreated cells in the presence of DMSO), Lanes 2 (batched cells treated with cycloheximide), Lanes 3 (batched cells treated with dexamethasone), Lanes 4 (batched cells treated with actinomycin D), Lanes 5 (batched cells treated with camptothecin), and Lanes 6 (batched cells treated with hydrogen peroxide).

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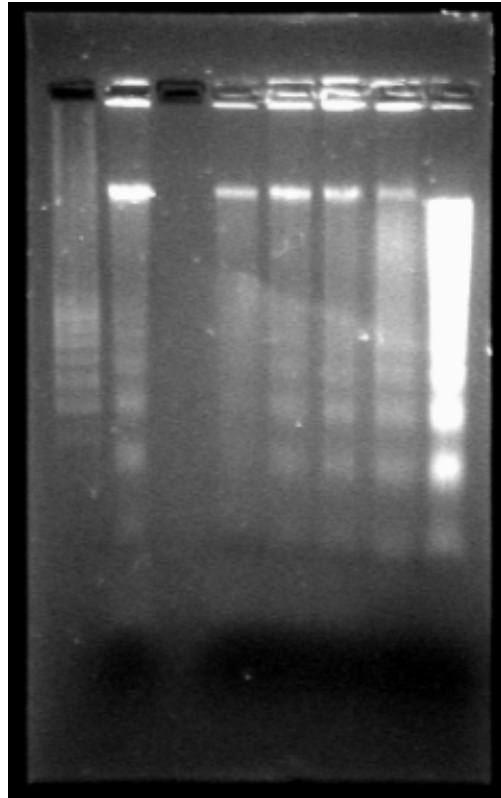


Figure 4: Effect of apoptotic inducers on earthworm coelomocytes where apoptotic DNA was isolated and run on a 1.5% agarose gel. Lane M (Molecular weight markers in bp: 1,000; 900; 800; 700; 600; 500; 400; 300; 200; 100; 50 and 25), Lane 1 (batched untreated cells in the presence of DMOS), Lane 2 (batched cells treated with actinomycin D), Lane 3(batched cells treated with cycloheximide), Lane 4 (batched cells treated with dexamethasone), Lane 5 (batched cells treated with camptothecin), and Lane 6 (batched cells treated with hydrogen peroxide).

Artwork





February 2011
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Weighing the Evidence on EXERCISE

HOW EXERCISE AFFECTS YOUR BODY WEIGHT

BY GRETCHEN REYNOLDS

How exercise affects body weight is one of the more intriguing and warring issues in physiology. Exercise burns calories, no one doubts that, and it should produce weight loss. A fact that has prompted countless people to undertake exercise programs to shed pounds. Without changing their diets, few succeed. "Theoretically, all of us have been concerned by people claiming to have spent hours each week walking, running, spin-cycling, etc., and are displeased with the results on the scale or in the mirror," writes Barry Braun, an associate professor of kinesiology at the University of Massachusetts at Lowell, in the American College of Sports Medicine's published in the February 2011 issue.

A growing body of a science does suggest that exercise has an important role in weight loss. That role, however, is different from what many people expect and probably wish. The newest science suggests that exercise alone will not make you thin, but it may determine whether you stay thin, if you can achieve that state. Until recently, the bodily mechanisms involved were mysterious. Simply leaving out the intense exercise impacting metabolism, appetite and body composition, though the consequences of exercise on very women's bodies, for instance, seem to reach different than men's bodies by the metabolic effects of exercise. None of which is a reason to abandon exercise as a weight loss tool. Just have an understanding what exercise can and cannot do.

"The general exercise by itself is what exercise can and cannot do," says Dr. Rebecca, a professor at the Pennington Biomedical Research Center in Baton Rouge, La., and an expert on weight loss. "It's especially unclear because people often end up consuming more calories when they exercise. The mathematics of weight loss is, in fact, quite simple, involving only subtraction: "The more calories that you burn, put yourself in negative energy balance, that weight," says Braun, who has been studying exercise and weight loss for years. "The deficit is achieved either from cutting back your food intake or from increasing your energy output. The amount of exercise you complete or both. When researchers affiliated with the Pennington

center had volunteers reduce their energy balance for a study last year by either cutting their caloric intake by 25 percent or increasing their daily exercise by 2.5 percent and cutting their calories by 2.5 percent, everyone involved lost weight. They all lost about the same amount of weight too—about a pound a week.

But in the exercising group, the dose of exercise required was nearly an hour a day of moderate-intensity activity, what the federal government currently recommends for weight loss but "it's not more than what many people would be able or willing to do," Braun says.

At the same time, as many people have found after starting a new exercise regimen, working out can have a significant effect on appetite. The mechanisms that control appetite and energy balance in the human body are elegantly calibrated. "The body aims for homeostasis," Braun says. "Remain at whatever weight it's used to. Changes in energy balancing produce rapid and instant changes in hormones associated with appetite, particularly ghrelin, which is known to increase the desire for food, as well as insulin and leptin, hormones that affect how the body.

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"Scientists are not sure yet just how and why exercise is so important in maintaining weight loss in people daily lifestyle today, Braun says."

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But the women uniformly had increased blood concentrations of several ghrelin and decreased concentrations of insulin after the sessions in which they had eaten less than they had burned. Bodies were directing them to replace the lost calories. In physiological terms, results consistent with the paradigm that mechanisms to maintain body fat are more effective in women," Braun and his colleagues write. In practical terms, the results are scientific proof that life is unfair. Female bodies, "by a biological need to maintain energy stores for reproduction," Braun says, fight hard to hold on to every ounce of fat. Exercise for many women (and for some men) increases the desire for it.

Thankfully there has been some more encouraging news about exercise and weight loss, including for women. In a study published last month in the *Journal of the American Medical Association*, researchers from Harvard University looked at the weight-change histories of more than 14,000 participants in a women's health study. The women began the study middle-aged (at an average of about 54 years) and were followed for 13 years. The women gained, on average, six pounds.

Packed on considerably more. But a small subset gained far less, coming close to maintaining the body size with which they started the study. Those were the women who reported exercising almost every day for an hour or so. The exercise involved was not unusual. "It was the equivalent of brisk walking," says M. Lee, a researcher at Harvard Medical School and Brigham and Women's Hospital and the lead author of the study. But it was consistently engaged in over the years. "It wasn't something they'd have done for years," the women who exercised also tended to have lower body weights to start with. All began the study with a body mass index below 30, a high end of normal weight. "We didn't look at this, probably safe to speculate that it was easier and more

wanted and falling around in their cages, all were returned. The scientists then switched them to a calorie-controlled, low-fat diet. The women shed weight, dropping an average of about 14 percent of their composition.

The animals were put on a weight-maintenance diet. Half of them were required to run on a treadmill for about 30 minutes most days. Other half remained sedentary for eight weeks, the rats were kept at their lower weights in order to establish a new baseline weight.

Then the fun began. For the final eight weeks of the experiment, the rats were allowed to return to, as well as much food as they wanted. The rats that had not been running on the treadmill fell upon the food eagerly. Most regained the weight they lost and then some.

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Scientists are "not really sure yet" just how exercise is important to maintaining weight loss in people. Braun, in an animal experiment, exercise seems to be the metabolic pathway that determine how the body burns and utilizes food. Published last summer, scientists at the University of Colorado at Denver followed a group of male rats. The animals always had an initial propensity to gain weight and, thanks to a high-fat diet fed last year, they fulfilled that genetic destiny. After 15 weeks of eating as much as they

