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Physics and Philosophy: Science Education Through the Eyes of Ayn Rand

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**PHYSICS AND PHILOSOPHY: SCIENCE EDUCATION THROUGH THE EYES
OF AYN RAND**

A thesis submitted to

Regis College

The Honors Program

in partial fulfillment of the requirements

For Graduation with Honors

by

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Introduction

This thesis will delve into the world of Ayn Rand and how the concepts of her philosophy, objectivism, can be employed to understand education, specifically science education, in the U.S. The thesis will begin with an explanation of objectivism which will include brief, biographical components of Rand's life. Continuing on, I will discuss the No Child Left Behind Act, the student-teacher relationship, and the integration of subjects in classrooms. With a chapter for each of these components, my thesis will discuss what these components look like in the current U.S. educational system and what Rand would have to say about the way the system exists in regard to these components. I will argue that the No Child Left Behind Act does not serve the autonomy of the individual students, that student-teacher relationships are necessary to build the student's education, and that integration of subjects in schools is both effective and necessary.

By no stretch of the imagination is the U.S. educational system perfect. Many people believe that standardized testing is an inadequate manner to gauge the level of success of students, that homework levels are too high or too low, and that the length of the school day is too long or too short. There are problems out there with administrators, teacher wages, and unions. Although this thesis will address education, it is not my goal to solve all of the problems listed above. Instead, I plan to offer my ideas about what a science educator can do to improve the education levels and lives of the students within his or her classroom.

As someone whose ultimate career goal is to become a science educator, I have a vested interest in the ideas that I will lay out in this thesis. For me, science education represents something much larger than itself. Not only do I find the information in those classes interesting, but they give me an understanding of how the world works. This is essential information to live well in the world because decisions should be based in the reality of the things around us. But if students do not understand that an education in the sciences will lead to a better understanding of the world and that this will assist them in leading better lives, then pertinent information will be lost on them. Science education is not just about the technology that is advanced by science, but it is truly useful in teaching people how to live.

This is where Ayn Rand and her philosophy come into play. In contrast to some other philosophers who believe that the physical world is all an illusion, Rand believes that reality is what it is: that A is equal to A. To put this simply, Rand is a realist. If one is to look at the world through the lens of a scientist, they will discover how the world works. The chemical processes behind photosynthesis have been discovered, and this is the reality of what a plant does in order to generate carbohydrates for itself. There is no magic, there is no façade that the plant puts up to make itself look like it is doing the process of photosynthesis. The plant is doing photosynthesis. A is equal to A. Because of this, I believe that Rand would push heavily for science education to be an essential piece of a student's educational experience. Science education provides intellectual understanding for students and not just the possibility of advancing technology.

In addition to the views she has about reason and science, Rand also includes an emphasis on the individual in her philosophy, and this concept has important implications for the education of students. This is not to say that individuals are isolated beings and should never interact with others, but each person should work towards his or her own success and not hinder anyone else from achieving his or her success. Do not ask people to make sacrifices to others, and do not accept sacrifices from other people. This is one of the key doctrines of Rand's philosophy. Because science education teaches people about the reality of the world and how it works, students learn to think and reason for themselves based on what is observed around them. This will arguably decrease the need for people to rely on the sacrifice of others in order to achieve success. And this success will also be based on reason and reality instead of emotion or mysticism. Science provides an account of the reality of the world, which truly does exist, so that people will not resort to basing decisions on baseless emotions.

But this also has implications on the manner in which science educators present the material to their students. I believe that Rand would want more experimentation within the classroom setting because experiments are manners of revealing reality. The data that are obtained during experimentation do not lie; they are caused by and exhibit the reality of the experimental outlines. Lecture material would be an essential starting point for the understanding of reality, but experimentation is reality in and of itself.

Following my discussion of objectivism and education, I will include a brief chapter on some of my criticisms of Rand's philosophy. This will include a discussion of

love and how it is not necessarily based on the advantages that people can see in one another. It will also discuss religion and how a person can be both religious and a follower of objectivism at the same time.

Chapter 1-Ayn Rand and objectivism

Objectivism was born out of Rand's comparison of her experiences in her native country, Russia, and the country she felt was her true homeland, the United States. During her time in Russia, there was a very collectivist and mystical attitude that Rand found completely unappealing. In contrast, the U.S. had a much more individualistic basis that appealed to Rand. In seeing the superiority of the individualistic mindset over the collectivist mindset, Rand developed a philosophy based on the needs of the individual.

The metaphysics of her philosophy state that the world truly is as it appears, that A is equal to A. She believed that "the task of man's consciousness is to perceive reality, not to create or invent it" (Rand, *Atlas Shrugged* 1074). This idea rejects the supernatural and the belief that reality can be created like the mysticism that she saw while still in Russia. Everything in the world is objective, and this is how humans can know the truth.

Her epistemology states that reason is competent to know the facts of reality and that reason is the only manner through which humans can obtain knowledge and information. Because of this, reason becomes a human's most basic means of survival and the method through which success must be achieved. Reason is something that is uniquely human, and humans must take advantage of this unique quality.

The ethics of objectivism make every person an end in him or herself. A person cannot be a means to the end of another person. All human beings are autonomous people who must also respect the autonomy of all other humans. It is neither just for a

human to make a sacrifice to another person nor to expect a person to sacrifice to someone else. Each individual person must work for his or her own rational self-interest. Thus, objectivism must reject all forms of altruism. It is through reason that humans can judge values and be led to proper action.

The only political system that Rand judges to be able to fit with her philosophy is laissez-faire capitalism. Humans must deal with one another as traders, which means that each person must give value for value in a free and mutual agreement to mutual benefit. Laissez-faire capitalism is the system that is capable of doing this because it is a system based on the recognition of individual rights and establishes the concept that the only function of government is to protect these rights.

The purpose of life for Rand is to be successful through the use of the individual's talents and resources in order to make a life for oneself. In order to live well, one must utilize his or her own reason to be able to understand how one is able to achieve success in this world. Even though people must rely on each other every now and again to stay on their feet, Rand would argue that the majority of the work that is done to advance one's life must be done by the individual. If someone simply sits around and uses the people around him or her in order to get what he or she wants without putting forth any effort to put in the hard work and employ his or her reason to achieve the success, this person is not a true success in Rand's eyes. Success must begin from a rational analysis of the world and end with the productive work of the individual. She does not believe that using other people and manipulating people to use their talents and reason to advance

someone else's desires is moral, justifiable, or successful. Humans have the unique ability to use an extremely advanced mind that is capable of understanding the world in a way that no other animal can. This is Rand's conception of reason, which she further describes as "the faculty that identifies and integrates the material provided by man's senses" (Rand, *The Virtue of Selfishness* 22). The senses will bring in all sorts of information, and everyone is capable of bringing in that information without a second thought. However, only the person who chooses to utilize his or her reason will be capable of fully understanding the implications of the information received. Thus, the use of reason does not happen automatically; a conscious attempt to use reason must be included (Rand, *The Virtue of Selfishness* 21). Through the use of reason, and reason alone, Rand believes that any human can understand nearly anything he or she needs to know about the world in general or a more specific situation. And this knowledge is what people need to be using in order to achieve success.

Because humans have this unique ability to employ their reason, this is the way that Rand believes humans should be interacting with their world and how they should be behaving. This is a philosophy that encourages hard work and focuses on the needs of the individual first because the individual is the one who must take the time and put forth the effort to use the reason and interpret the actions that should proceed from this process. The hard work that a person puts in must also be productive as "productive work is the central *purpose* of a rational man's life, the central value that integrates and determines the hierarchy of all his other values" (Rand, *The Virtue of Selfishness* 27). But work is only productive if it is the means to an end that the individual wishes to achieve. If an

individual wants to create a product to sell and turn a profit, then work done to achieve this goal is considered productive. However, going out to a forest and cutting down trees without the goal of turning a profit or creating a source of firewood is not productive. Although the person cutting down trees is working, this work is not productive because there is no end goal that is beneficial to the individual. Once a person truly understands that productivity is the process that humans should undertake to create their own purpose, the other values and standards for all actions in life can be properly formulated. To be considered successful by Rand's standards, one must work hard to first use reason to create an understanding of what is going on in the world and why these things are occurring. This information must then be used to determine a method through which the individual will act in order to make the most out of the situation. Although this action is open to the interpretation of the individual, it cannot include the manipulation of or the dependence on other people. These people are individuals too, and they must utilize their own individuality in order to find success for themselves as does the individual who is taking on the action. Individual humans must respect the autonomy of other humans.

Even though Rand does not believe that people should rely heavily on each other to achieve success and get what they want, this does not mean that people cannot rely on other people ever. People are a part of a social society, and there are various times throughout a person's life when he or she will need to ask for the assistance of other people in order to survive or achieve some sort of success. In order to justify the use of other people and their talents to help achieve one's success, some sort of compensation must be provided to the person giving assistance. This is equivalent to paying people for

the labor they do. If someone is going to run the cash register at a business, then the business owner should be providing monetary compensation or some other form of compensation to the worker. But this compensation must be agreed upon by both parties (Rand, *The Virtue of Selfishness* 32).

For Rand, a huge problem with relying on other people comes when people stop utilizing their own talents in favor of only relying on the talents of other to get by in life or to sometimes even be “successful”. However, in the eyes of Rand, these people are not successful, even though many people may believe they are successful, because they are not using their own reason and their own talents in order to discover what needs to be done in order to do the best that they can in the given situation. By choosing to ignore the special ability that humans have, called reason by Rand, and to simply watch others and wait for them to fix any situation that may arise, certain people who may appear successful on the surface may not in fact be very successful at all if looked at through an objectivist lens.

This is certainly the case in Rand’s most famous novel, *Atlas Shrugged*. The most evil characters by Rand’s standards in this novel are generally considered to be the most moral characters by the general public of the novel. These people are choosing not to employ their reason and “succeed” only by using the reason and the logic of the characters who have actually chosen to use reason to solve their own problems. In contrast, the characters who have used their reason and logic are also thinking solely of themselves, and the things that are of interest to the individual, while choosing to ignore

the needs of people who are not using reason and are therefore less successful in the public's eye. Hank Rearden, the owner of Rearden Metal, is a prime example of someone who focuses on the needs of himself ahead of the needs of others. His mother comes to him at one point in the novel in an attempt to force him to give a job to his brother. Rearden's brother, Philip, has never had a career and has spent his entire life volunteering for various social causes. Philip is not qualified for any job within Rearden's company, but his mother begs Rearden to give Philip a job anyway because "[i]f a man *deserves* a job, there's no virtue in giving it to him. Virtue is the giving of the undeserved" (Rand, *Atlas Shrugged* 197). This is the opposite of Rand's idea of virtue. Rearden continues to refuse giving his brother the job because he does not see the virtue in giving someone a job that is undeserved because it will only work against the success of Rearden as an individual.

The people, like Rearden, who are ignoring the needs of others are considered to be selfish by people in the world around them, but Rand believes that there is virtue in selfishness when it comes to using reason and talents in order to focus solely on the individual to achieve success for that individual. Although the word selfish has a negative connotation for the average person, under Rand's philosophy it is more of a positive attribute than a negative one. In order for a human being to be fully capable of using his or her reason in the most fruitful manner, Rand believes that one must set aside all other considerations in order to focus on the situation in which an individual is placed. The individual must then also utilize the information that is given through reason in order to do what is best for the individual. If the individual chooses to focus on something else,

like the desire to overpower other people or to satisfy the needs of other people, while attempting to use reason, then the individual will ultimately have to pay the price for this decision because the individual will not be doing what is best for him or her alone. Selfishness does not involve forcing someone else to do something undesired by the individual; selfishness respects the autonomy of other individuals. If one is to focus his or her energy on the power that one will achieve through muscling someone else out of the way, then this person is living for other people and not the individual (Burns, 42). This is an action that Rand termed self-sacrifice and is one of the main non-negotiable actions that Rand connects to the failure of an individual. For Rand to truly consider a person to be successful, this person cannot sacrifice to another person or to a society. Once a person begins to use reason and his or her talents in order to assist another person ahead of the individual, this is where the individual is unable to do what is best for that individual because he or she has already exhausted too many resources on the needs of others.

Also, when assisting another person by sacrificing the needs of the individual, the person who is receiving the assistance becomes more dependent on receiving assistance from others and begins to lose the ability to utilize his or her own reason and talents. If more and more people are forfeiting their ability to use reason in order to advance the status of the another based on a given situation, then the world will start heading further and further downhill. If everyone begins to depend on others in order to survive, then there will eventually be very few people left for anyone to depend on and only minimal productivity will occur; “Do not expect them to produce, when production is punished

and looting rewarded. Do not ask, ‘Who is destroying the world?’ You are” (Rand, *Atlas Shrugged* 384). It is essential that the individuals of this world are able to understand that people need to rely on themselves primarily. Only in instances of real emergency should one reach out for help. This help should be repaid and should never be allowed to become a habit.

This is the real problem that Rand foresaw as people began to depend less and less on themselves, especially in her native country of Russia. Rand was alive during the time of the Russian Revolution, and she saw how hard-working people were punished for being successful, which is something that Rand believed to be one of the most unjust things imaginable (Burns, 10). One of the most prominent examples that Rand saw of this unjust punishment was her own father. He had gone to college to get his degree, opened his own shop, and made a successful life for himself. However, in the blink of an eye, the state of Russia seized this shop in the name of the people, and Rand quickly learned that these revolutionaries who spoke of a better life for the people were simply attempting to gain power and were never to be trusted (Burns, 9). These revolutionaries were attempting to appeal to the people with their promises of improving the quality of life of the people of the state of Russia, but this was not their ultimate goal. All that they wanted was the support of the people so that they would be able to rise to power and do whatever they desired. But the power and success of these revolutionaries would, of course, have to come at the expense of the Russian people who were working hard and had used their reason in order to achieve their success without depending on the reason of

others. These hard-working people, including her own father, became what Rand would define as a heroic man.

The heroic man for Rand would become the central figure in each of her novels. In some cases, a novel would have several heroic figures, but they would always be presented as the protagonist of the story and someone for whom the reader would want to root. And anyone who stood in the way of these heroic men, just like the revolutionaries in Russia, was meant to be seen as the enemy in the story. These characters were portrayed as lazy workers who were only willing to feed off of the success of the heroic, hard-working characters. They did not earn any of the “success” they had, and they could not have been able to earn it because they focused more on the needs of others than on the needs of the individual. When they should have been focusing on what it would take in order for the individual to make it in his or her world, they were focused on the needs of everyone else. Very often, the antagonistic characters of her novels are considered to be the most morally sound people by the general population of characters in the novel. This is also very often the case because these people appear to be selfless in their attempts to place the benefits of others ahead of their own. However, Rand would argue that these people are less moral than the hard-working people because the people who focus so much on the needs of others are not capable of taking care of themselves and thus ultimately end up depending on others in order to survive. This is not the manner in which Rand believes people should be behaving or the order that people should place their priorities.

In all of the novels that Rand has written, at least one of the heroic “men” of the story has actually been a woman. Although these characters are actually women, they retain the same qualities that Rand has given to the heroic men of her stories. Dagny Taggart, the heroic woman in *Atlas Shrugged*, is a high powered business woman who is in charge of running Taggart Transcontinental, the railroad company around which the novel is centered. Many of the other women in the novel view Dagny more similar to a man than a woman because of her position at Taggart Transcontinental, her preference of pants suits over dresses, and her overall attitude towards hard work over fashion. Rand may have seen herself in characters like Dagny as she was creating them because one of the greatest compliments she believed she had ever received was when she was told that she acted more like a man than a woman (Burns, 137). What Rand liked most about this statement was likely related to the fact that a stereotypical man uses more logic than emotion, and a stereotypical woman uses more emotion than logic.

As all of Rand’s writing have indicated, logic and reason are much more valuable resources to being successful and gaining the most out of this world than the use of emotion or force. The most prominent writing that Rand has done in regard to this issue exists in her philosophical book, *For the New Intellectual*. In the first half of this philosophical book, Rand spends her time describing her philosophy mainly by explaining exactly where many of the main thought processes that are utilized today went wrong. Instead of following the ideas of the person she calls the Producer, the person who employs reason in order to create and achieve success, the thinkers of recent time have focused on the ideas of Attila, the person who utilizes force and physical force in

order to make the most out of the world, and the Witch Doctor, the person who finds importance of emotion and the mysticism the goes beyond the reality of the world.

By following the ideas of Attila and the Witch Doctor as opposed to the ideas of the Producer, the major thinkers of recent times have set themselves and the rest of the world up for disaster. According to Rand, reason is the only tool that we have that allows humans to be able to gain a full and true understanding of the world. Reason is a tool that is unique to humans, and humans should fully utilize this tool because it is so exceptional and useful. If one decides that using brute force and emotion, the tools of Attila and the Witch Doctor, is the best method to attempt to achieve success in the world, then this person will surely face failure. These people are attempting to exist by muscle and feelings instead of the mind, and this causes the establishment of an incomplete human being (Rand, *For the New Intellectual* 14). Rand believes that it is necessary to exercise the reason that one contains in order to be truly human. This follows the same lines in regard to success: in order to be successful in this world, the person must be truly human, and this involves being capable of exercising reason. Although the use of force and emotion can be useful in clarifying certain ideas or situations, they should not and cannot be the sole or primary resource that a human uses to be able to understand a situation. Reason must always precede and govern force and emotion.

It is up to the readers of Rand's novels to take the information that has been presented in order to bring humans back to reason and tear them away from the muscles and the feelings that have been driving societies for quite some time now. A group of

“New Intellectuals” must step forward in order to bring about a new philosophy that will break people out of the pattern of making use of force and emotion instead of reason (Rand, *For the New Intellectual* 50). These New Intellectuals are meant to be the readers and followers of objectivism because they are the ones who are truly able to see the dangers that can come about when hard work and reason are pushed aside in favor of emotion and an attempt to bring equality to all people, including those who have not earned what they are being given. Rand believes that it is necessary for the followers of her philosophy to live by the ideas that are presented in her philosophy so that people can see the success that can come from following her ideas.

This is similar to the argument that Rearden makes in *Atlas Shrugged* when he is indicted for “illegally” selling his Rearden Metal. There was a law set in place to regulate the amount of product that one could sell to each person; Rearden broke this law in order to sell a large amount of his Rearden Metal to Ken Danagger because he wanted the freedom to be able to make a profit on the metal that he created through his own hard work and determination (Rand, *Atlas Shrugged* 444). A government agency, which had attempted to obtain Rearden Metal for several months without any success, found out about the sale and attempted to blackmail Rearden until he gave them the metal they were seeking. When Rearden stuck to his morals and refused to give the government the metal that was a direct result of his reason and hard work, they used the information against him. Once Rearden was in front of the court, they attempted to get Rearden to plead his case, but Rearden refused to make a defense for himself because he did not believe that he was being prosecuted for a justifiable crime because he wondered “Who is the public?”

What does it hold as good?" (Rand, *Atlas Shrugged* 442). If the law is based on the public good, then these questions must be answered first; however, the court and the public who were not on the side of Rearden did not see these as valid questions. As Rearden continued to explain his reasoning and refused to help the courts take him down, all of the other business men and women who were listening to the case who believed in similar values to those that Rearden, and Rand, held dear cheered for Rearden. He ultimately only ended up with a \$5000 fine for his "crime". This scene represented one of the largest steps forward for the business men and women who were motivated by their desire to work hard in order to make a profit.

In the mind of Rand, a movement of this sort is exactly what the world needs in order to get back on the correct track. This instance is an example of what the New Intellectuals should be working on if they truly wish to be a part of what Rand and her philosophy are attempting to do and to teach people. However, it still remains that one must not sacrifice the individual in order to advance the needs of another person. Before going into a situation to defend someone who has worked hard and needs to be compensated for the hard work that this person has put in, it is necessary to understand that one's own needs must be placed in the forefront of the situation. Each individual is their own autonomous person. This fact is true whether or not the other people around the individual have the same beliefs as the individual or not. Even if two people are fighting for the same causes and believing in the same ideals, the individual must still come first. This is especially true if the individuals all believe in the philosophy of Rand

which says that the needs of the individual are much more important than the public good or what the group needs.

In many of her works, Rand describes the steps that a person should take in order to achieve success, but there are very few instances where she actually states what her exact definition of success is. This is an interesting thing to note because she has many quotations which begin with phrase such as “man’s moral purpose in life is” or “reason can be defined as”; but this is not the case when she speaks of success.

Reading through the sections of *The Virtue of Selfishness*, one comes across a discussion of happiness and how it should be used to describe the level of success that a person has achieved (Rand, *The Virtue of Selfishness* 30). This idea is a logical manner for Rand to propose for the measurement of a level of someone’s success because happiness is often a very individual emotion, and Rand wants success to be on the level of each individual. However, Rand makes a clear distinction between just acting upon things that make a person happy and happiness that stems from a rational beginning. The latter form of happiness is what Rand truly believes people should search for in defining the success of the individual. This idea comes from the reality that exists between the two forms of happiness:

“Happiness is that state of consciousness which proceeds from the achievement of one’s values. If a man values productive work, his happiness is the measure of his success in the service of his life. But if a man values destruction...*his* alleged happiness is the measure of his success in the service of his own destruction. It

must be added that the emotional state of all those irrationalists cannot be properly designated as happiness or even as pleasure: it is merely a moment's *relief* from their chronic state of terror" (Rand, *The Virtue of Selfishness* 31).

This quotation begins by revealing Rand's true definition of happiness: that it proceeds from realizing the values that someone holds dear. But she then turns around right away to qualify the first statement. It is only when a man values productive things, such as work that will lead to a successful end, that happiness is a true and valid emotion. This is why happiness must come from a rational beginning in order to define success for a person. If happiness does not proceed from values that are productive to the success of the individual, this happiness only represents a façade of pleasure. By lying to oneself about the rational sources of happiness, true happiness cannot be achieved because the resulting happiness is only temporary.

Rand's ideas about success and happiness also extend into the realm of the interactions that people have with each other within society. This concept goes back to the distinctions that Rand makes between Attila, the Witch Doctor, and the Producer. Attila and the Witch Doctor base their actions off of desire, but this is the source of many issues within a society because people do not always have the same desires. If the Attilas of the world are allowed to follow their desire to employ their brute strength in order to gain power over other people, there is nothing to stop them if people are simply allowed to use desire as an ethical standard. By using desire as the method to determine how a man can achieve success, then "one man's desire to produce and one man's desire to rob

him have equal ethical validity” (Rand, *The Virtue of Selfishness* 33). Obviously, this is not a stable premise establish a base of a society, so desire cannot define a society.

After making comments about the downfalls that occur when people attempt to follow other methods of achieving success, Rand explains what her philosophy and what the followers of her philosophy believe in. Her objectivist ethic upholds the idea that “*human* good does not require human sacrifices and cannot be achieved by the sacrifice of anyone to anyone” (Rand, *The Virtue of Selfishness* 34). Not only does Rand expect people to not sacrifice themselves to others, but people cannot accept self sacrifice from other people. Attila and the Witch Doctor cannot exist within a successful society not because they offer their own self sacrifice to other people (in fact, they are probably some of the least likely people out there to offer their self sacrifice) but because they accept and expect others to sacrifice to them. This is a drain on the social system that people live in and does not allow anyone to achieve success.

Chapter 2-Rand and No Child Left Behind

Although the purpose of this thesis is not to attempt to answer all of the questions that pertain to education within the U.S., it is important to highlight some of the components that go into the education that students are currently receiving. This chapter will begin by taking a look into one of these components in order to gain a better understanding of that component and education more generally, followed by an analysis through the eyes of Rand.

One of the components of education that has had the largest impact on the educational system in the U.S. has been the No Child Left Behind (NCLB) Act that was passed in 2001. The purpose of this Act was to identify failing schools within this country and make them more accountable for the education of their students (Price, 781). By setting certain high standards that schools must be responsible for and creating measureable goals for the schools to reach, the Department of Education is intended to ensure that all students within this country are able to receive the education that will be useful in the success of their future lives. These are the ultimate ends that the NCLB Act is attempting to accomplish.

Probably more important than the ends that this Act is trying to achieve are the means through which the Act wants to get these things done. One of the measureable goals that the government wanted to use to assess the achievement of schools is standardized testing. By the end of the 2005-2006 school year, all students from third to eighth grade were required to take standardized achievement tests in the subjects of

reading and math in order to determine the Adequate Yearly Progress (AYP) of the students (Woolfolk, 4). Other subjects are to be added later. The AYP is the progress that schools are making towards ensuring that all students are making their way up to a proficient level in reading and math. In order to reach the AYP for a school year, 95% of students in a school must be tested (along with 95% of students within each subgroup), each subgroup must meet the basic requirements set by the state, and the state set graduation or attendance benchmark must be met. By meeting the AYP each year, the school will move closer to the proficient level for all students. All students must be at the proficient level or higher by the 2013-2014 school year (Woolfolk, 4).

In order to ensure that all students within the country are receiving an adequate education, the NCLB Act named ten subgroups of students who all must reach the proficient level by the 2013-2014 school year. These ten groups are: the school as a whole, White, Black, Hispanic, Native American, Asian, Multiracial, economically disadvantaged students (those receiving free or price-reduced lunches), limited English proficient students, and students with disabilities (Public Schools of North Carolina, 2). By testing the achievement of all of these groups of students, the government is more capable of ensuring that all students are performing in the classroom and that more talented groups of students are not compensating for a group that is not performing as well.

The government was not just interested in looking at the progress of the students in determining which schools were failing and which ones were achieving up to

standards. They were also interested in looking at the teachers who are working with these children. After all, the single most important factor in the success of a school is the individual teachers who make up that school (Marzano, 1). By June 2006, all teachers of core subjects (English, reading, math, science, foreign languages, civics and government, economics, art, history, and geography) were required to be “highly qualified”. The definition of a highly qualified teacher is one who is fully licensed or certified by the state, who holds at least a bachelor’s degree from a four-year institution, and demonstrates competence in the academic field in that he or she is teaching (Public Schools of North Carolina, 8). Also, teaching assistants, or paraprofessionals, must have a high school diploma or equivalent and be working under a “highly qualified” teacher. If a paraprofessional is performing any instructional work within classrooms, then he or she must have an associate’s degrees or at least two years of study at an institution of higher learning (Public Schools of North Carolina, 9).

If a school continues to follow the requirements that have been set forth by the NCLB Act, then the school will continue to receive its Title I funding (federally funded entitlement funding for education). If, however, a school fails to meet these requirements for two years in a row, consequences are given to that school. The Title I funding can be taken away from a school or a school can become sanctioned, or controlled, by the state (Price, 783). This obviously has implications on how teachers are now working within their classrooms.

Because of the huge emphasis that this Act has placed on successful testing of students in schools, it is clear that teachers and administrators must place a large amount of focus and energy on ensuring that students will do well on these examinations. Teachers must now teach to the test. In the specific example of science education, it is easier to test key terms or words than it is to test for true scientific understanding (Alberts, 78). Thus, teachers are more inclined to test their students on key terms on the tests for their own classrooms. Standardized testing includes a high percentage of multiple choice questions because they can be scored quickly (Alberts, 78). This will increase the proportion of multiple choice questions to essay questions within classrooms test as well. This also decreases the amount of creative liberty that teachers can have in their classrooms (Achtermann). Teachers are being told by the administration of their schools that they all need to teach in the same cookie cutter fashion so that all classes are prepared for the standardized examinations which come at the end of the year (Achtermann).

The NCLB Act has also increased the amount of research that is dedicated to learning the most effective methods of teaching to be used within classrooms. Although education had begun to move in this direction when the Act was put into place, this Act pushed the idea into action more quickly (Karubus). Research projects to discover best practice teaching, like the one conducted by Jeff C. Marshall in 2008, are becoming more common and more widely used by teachers to establish the specific actions that are considered to be helpful to most teachers. Although strategies that achieve success for teachers are different, there can be a general understanding of some strategies that

teachers can do to improve their teaching strategies based on overall strategies that work for other teachers (Marshall, 49). This is what best practice teaching attempts to do. People will conduct research on successful teachers by looking at the teaching strategies of these various teachers and comparing them to each other to see what these teachers are doing that is so successful. Because the NCLB Act has forced teachers to become more accountable for ensuring that students are learning, more and more research-based instruction is being required. Instead of teachers just thinking that it is good enough to have taught the material to their students with the expectation that they will learn it, teachers are now making sure that their students actually do learn what they are being taught so that the students will pass the standardized tests (Karubus).

As with many people, Rand would see the value in the ideas behind the creation of the No Child Left Behind Act. It is important that teachers and administrators be held accountable for what the students in their school are actually learning. If students are going to spend the time and energy to get an education, they need to be able to learn information and skills that will allow them to be able to objectively see the world and become successful in Rand's eyes. Since Rand places such an emphasis on the necessity to see the world objectively and to employ this information in order to be able to make informed decisions about the world, it is clear that Rand would want students to be able to learn enough from their education to be capable of doing so.

Because schools start to lose federal funding if they do not reach certain levels of improvement each year, it is essential that students learn the information that is presented

to them in the classrooms so that they can do well on the standardized tests. In theory, this means that teachers will ensure that students learn because they do not want to lose federal funding for their school. But schools are not always capable of reaching the AYP goals that have been set forth in the NCLB Act for various reasons including low funding and special needs out groups. There are numerous schools throughout the country in the past several year that have lost their Title I funding because of their inability to reach their AYP goals. So now the schools that were underachieving before receive even less funding and have fewer opportunities to bring themselves out of the situation (Ramanathan, 278). Despite the efforts that these schools can make towards becoming more proficient and accountable for what the students are learning, the lack of funding makes it even more difficult than it was before for these schools to ever be able to reach the educational levels that the government expects. On the other hand, the schools that are able to reach their AYP goals for the year continue to receive their funding even though they already have the resources to teach their students well.

Rand would not argue that funding should not be taken away from the schools that have met their goals. These schools have used the objectivist information from the world around them to understand what needed to be done to meet the requirements of this Act and establish a successful learning environment for their students. These schools should be rewarded for seeing the world objectively and utilizing this information to make rational decisions and work hard to achieve what needs to be achieved. Since these schools are doing the productive work that Rand values as the kind of work that man should strive towards (Rand, *The Virtue of Selfishness* 27), a world in which people

value productive work would reward these schools. If everyone understands that productive work is valuable, then no one will have a problem with the fact that schools that are doing well continue to receive funding. And as a general rule this is true because most people do not have problems with the fact that the successful schools are receiving funding.

On the other hand, many people disagree with the fact that schools that do not meet the AYP goals for a given year have their funding taken away. This penalty only seems to enhance the problem that is clearly already existent in the school. If a school is already behind another in terms of proficiency, then it will be more difficult for this school to reach a proficient level if it has less funding than the schools that have reached the proficient level. When these below-proficient schools lose their funding, then the students lose some opportunities to learn how to see the world in an objective manner. And if people are going to do anything in order to assist other people, it needs to be in the interest of teaching people the ideas of objectivism and how to see the world objectively. Rand states that “the need for intellectual leadership was never as great as now” (Rand, *For the New Intellectual* 57). There needs to be examples in the world of people who are employing their reason and becoming the New Intellectuals of the world.

One of the greatest places to be an intellectual leader and to teach others how to follow the ideas of Rand is in the classroom. But when schools lose the funding to be able to hire the teachers who are going to be these kinds of examples, students are losing their greatest asset in learning how to become the New Intellectuals of the next

generation. Even though Rand argues that there is a difference between things that have been earned and things that are unearned and that the emphasis should be placed on the earned (Rand, *For the New Intellectual* 44), that is not exactly the situation that is going on with NCLB. Yes, the schools that do better on the standardized examinations earn the funding that they receive and the schools that do not reach the AYP goals on these examinations do not earn their funding. But by lumping the entire school together, some students are receiving funding when they are not earning it by their test scores and some students are being denied funding when they have earned it by their test scores. A school may be earning the funding it receives, but the individual students may or may not be earning it. And this goes the other way as well. The funding situation that occurs because of NCLB cannot fall under the realm of Rand's earned and unearned idea because of this system of funding.

Since NCLB funding does not follow Rand's ideas of earned and unearned items, it cannot be said that Rand would think that NCLB would be an effective manner to encourage the teachers and administrators of schools to get students invested in their own education. Even though schools see a direct reward/punishment system from the NCLB Act, individual students do not. This is a perfect example of Rand's idea that there is no such thing as the common good because "good...pertains *only* to a living organism-to an individual living organism-not to a disembodied aggregate of relationships" (Rand, *Capitalism: The Unknown Ideal* 20). The way that NCLB Act is set up does not allow hard-working and dedicated students to necessarily receive the same funding that was assisting their education beforehand. The students who want to learn more about how to

truly understand the world may or may not be able to do so to the full extent of their ability because of the way NCLB deals with funding on a school instead of individual basis.

Since the NCLB Act has the provision of improving reading and math skills by 2014, many other subjects have been sacrificed in order to spend excessive amounts of time on reading and math to ensure that students can pass the standardized examinations. This includes sacrificing the amount of time that students spend studying science. When only a limited amount of time can be spent learning about science, students do not get to participate in experimental and exploratory learning as often (Achtermann). Teachers simply have to rush through the lecture material in order to get the students through basic concepts. But this does not actually end up teaching the students the thought process behind the concept very well. Sure, they may understand in general the idea that oxygen is a by-product of photosynthesis, but unless they get to go into the lab and actually observe the production of oxygen as photosynthesis is occurring, this information has the potential to be meaningless. Rand places such an emphasis on the on ability of people to see the world around them and to utilize this information to make decisions about productive choices. This is why she would be in favor of a more extended amount of time spend on educating students within the sciences. When students learn more about science and are able to perform exploratory activities and experiments, then they have a better understanding of the way the world works as science tackles these questions quite often. If students have the ability to see the world objectively, then they are capable of

using their reason in order to make productive, and what Rand would deem morally conscious, choices.

More than anything, the NCLB Act is a disservice to the attempt that students and teachers make at ensuring that students are learning. The NCLB Act ensures that students are learning certain material that the government believes to be important, but it does little to actually teach students about the world and how to live in the world. More important than isolated facts, Rand wants people to know how to see what is happening in the world and to know what to do with this information once it has been obtained. Also, it lumps students into groups based on the school they attend, their race, their gender, and so on. The NCLB Act has no regard for each individual student because it does not ensure the learning of every student, only groups.

Chapter 3-Rand and the student-teacher relationship

Another crucial component of a student's education is the interaction that occurs between the students and the teachers. Students and teachers are both on the same team; one cannot exist without the other (Marzano, 147). If a teacher has no one to teach, then he or she cannot be considered a teacher. If a student has no one to learn from, then he or she is not really a student. This is an obligatory mutualistic relationship. Even though the engagement that teachers must provide to the students in order to make them successful learners is fairly self-evident, it is arguably the most important factor in teaching (Marzano, 98). It is the job of the teachers to not only teach the students the material that they are supposed to present, but the teachers must also ensure that students are actively participating in the learning process so that they can gain the most out of their time in the classroom.

In order to teach students in the most effective manner possible, it is essential to establish the positive relationship between the teacher and the students. If this relationship becomes instituted as something good for the students, then everything else that happens in that classroom with that teacher is enhanced (Marzano, 150). Not only is the student-teacher relationship a good place to begin when a teacher receives a new group of students, but it is also a crucial component that must be continued to be carried throughout the learning process. Although it is possible for students to learn something from a teacher who has not established a good relationship with the students, teaching will ultimately end up taking more time, more effort, and more energy on the part of both

the students and the teacher. This is why most teachers understand the necessity of creating a positive relationship with their students and the continuation of this relationship for as long as the teacher is in charge of these students and often far beyond this time period as well. Because the longer this positive relationship lasts, the more of an influence this teacher can have on their students (Marzano, 151).

When most people think back to the education that they received, they remember the times that they were motivated to learn because this information stayed with them better. And more often than not, this information is derived from teachers who had developed a positive relationship with them. These teachers are the ones who took the time to invest in a student as an individual, and many effective new teachers attempt to utilize the same process in teaching their own students (Achtermann). Investments have long term effects, so investing in a student will have a long term effect on the manner in which this student continues to learn in the future.

In more of a short term outlook, an increase in the student-teacher relationship leads to fewer classroom disruptions (Marzano, 150). Obviously, the fewer classroom disruptions the students make, the more time there is for learning because the teacher does not have to take time away from the curriculum to correct the disruptive behavior. More time is spent teaching the material as opposed to disciplining the students who are distracting the classroom. In turn, this more focused classroom time will also increase the amount of focus that the students will exhibit towards learning the material. With fewer distractions, the students will be capable of becoming more focused on the material

instead of other students in the classroom. Also, students will be less likely to start up a distraction because they feel a positive connection with the teacher. A student who has a good relationship with a teacher does not want to detract from class because they have respect for that teacher (Marzano, 152). Even if the information being presented is not overly exciting to the student, a student who respects his or her teacher is more likely to stay focused on the subject because of the positive relationship that has been established.

The students with a positive relationship with their teachers are also generally more productive than the students who do not have this relationship (Achtermann). When a student feels appreciated and understood, he or she is more likely to work harder and attempt to complete assignments more accurately. A student wants to succeed for a teacher who also wants him or her to succeed. It is easier to get excited about an assignment and to try to do the best work possible when the teacher who is going to be looking at and grading this assignment is someone who cares about the student on the other end of the assignment. There is a certain level of comfort and assurance that comes from knowing that the person grading an assignment has a vested interest in the success of the individual student and the information that the student is learning (Achtermann).

When a teacher has created a learning environment through a positive relationship with his or her students, this also has an effect on how willing the students are to trying new things. If the relationship with the teacher is good, then a student feels safe in being able to take risks and chances in his or her learning without facing ridicule from the teacher (Karubus). Being able to take these risks and finding out what works and what

does not work for an individual student and learner is critical to the future success of the student. This is true for future classrooms, but it is also true for the experiences that these students will have throughout life. These students are allowed to experiment with various strategies while still in the context of the classroom. They can figure out which methods and ideas work for them and which ones do not before going out into the world in an attempt to figure out the world for themselves.

But the important thing to note with some of these concepts of a positive student-teacher relationship is that the relationship that the teacher is attempting to establish must be genuine. A teacher cannot simply fake the relationship in order to try to get his or her students to do better on tests or homework. A teacher must truly believe that a student has the potential for success. It is not enough for a teacher to pretend to be interested in the success of student. He or she must truly believe in the student. Teachers must be genuine in their attitudes towards their students. If a teacher is faking this relationship, then he or she will unconsciously subvert the students' success or, at minimum, do little to facilitate the success (Marzano, 162). This is a topic that is rarely covered because it is something that happens subconsciously. It is not as though teachers are consciously attempting to destroy the success of their students; it is simply part of the process that occurs when the teacher does not truly believe that a student can succeed. This is why it is so crucial that teachers establish a real connection with their students so that they can find the potential that exists in every person willing to learn and to employ that potential to both consciously and subconsciously attend to the success of the student.

Overall, Rand would be in favor of ensuring the success of the student-teacher relationship. The classroom is the location where students get the opportunity to enhance their skills in reason and see the world in an objective manner. And it is this skill set that Rand places great emphasis on because this is how she believes that humans must see the world in order to make the most informed and intellectual decisions possible. For her, “action divorced from ideas is suicidal” (Rand, *For the New Intellectual* 51). In order to act, humans must have informed and truthful ideas about the world. And humans can learn how to form these ideas in their classroom coursework if the teacher is doing an effective job. And the effective job that the teacher must undertake involves the relationship with the students because establishing a good relationship with the students creates a better learning environment.

When the teacher has created a positive relationship with the students and the level of disruptions in the classroom is reduced, then the students will have an easier time paying attention to the way in which a teacher exemplifies the objectivist reasoning that exists under Rand’s philosophy. The more focus a student has on a teacher, the more the students can learn about the way the teacher perceives the world. If this student is able to see that a teacher is looking at the reality of the world, then the student can learn how to act like the teacher in order to build his or her own skill set to perceive the world. Although complete imitation is not conducive to the productivity of these students, these students can pick and choose the elements of the teacher’s understanding of the world that they find productive. But if a student does not have a positive relationship with a

teacher and is too distracted in class to be able to see the way a teacher reads the world, then this is all for naught (Marzano, 152).

The increased productivity that results from the positive interaction between students and teachers also adds to the benefit that Rand would see from this relationship. Because Rand believes that “productive work is the central purpose of a rational man’s life” (Rand, *The Virtue of Selfishness* 25), this positive relationship will benefit the students and the world in the future. Because their productivity has been increased as students, they will be more likely to engage in productive works as they become members of the world outside the classroom. They have practiced and enhanced these skills enough in the classroom and have had the opportunity to see the positive impact that productivity can have on their learning and grades. Thus, these students will know what to do when they graduate from school and get jobs in the real world because they have seen and done it so much in the classroom.

Also, the increase in the willingness to try new things when the interaction between students and teachers is a positive relationship, would be a beneficial concept in Rand’s eyes. When people see the things that are going on in the world around them and utilize their reason in an attempt to make decisions which are based in reality, they are going to need to try new things in order to make these decisions. Not everything that people will discover with their reason will be things that these people have done before. Therefore, to use reason in the form that Rand meant for it to be used, people will be required to try different things in different situations. The classroom is another instance

where students are able to test out strategies and ideas to figure out how to use the skills that Rand would argue are required in order to live in the real world. The positive student-teacher relationship that certain students experience gives them that freedom to experiment with trying new things without having to face ridicule from their teachers. The teachers are there to not only teach the students about the classroom material but also about life skills (Karubus). When these students are able to master these life skills, they will be much more successful members of the world.

For Rand, the relationship that exists between students and teachers represents a mentor relationship. The teacher is there to show the student how to act and understand what life will be like once he or she enters into the world where he or she must make important decisions for him or herself. If the student respects the teacher through a positive relationship between the two, then the student will make an attempt to see the world like the teacher does and react similarly.

Rand comments on the mentor relationship in her novel *The Fountainhead*. The story surrounds itself around the life of Howard Roark following his expulsion from architecture school for having too individualistic of building designs. Roark then goes to work with an architect, who is quite similar to Roark, named Henry Cameron. Roark admires the fact that Cameron never sacrificed his design ideas in order to conform to the general public. He believes that Cameron is “a noble fighter, a martyr to a lost cause, and [he’d] love to die on the barricades with [him]” (Rand, *The Fountainhead* 55). Roark sees Cameron as a mentor, as someone who has seen the world around him and used that

information to always do what would produce the best result for him. Cameron then describes the problems that Roark will experience in his quest to do the things that Cameron attempted to do, but Roark does not care. He has seen his mentor at his high point and wants to do it too. Cameron agrees to become his mentor, despite all the negative consequences that Roark may face in the future, and show him what he knows about building (Rand, *The Fountainhead* 56).

After Cameron decided to close his office, Roark continued to look for work. Although he faced struggles, he eventually opened his own office. Cameron asked to see pictures of the office after Roark opened it and felt a certain satisfaction in knowing that he “did live to see it” (Rand, *The Fountainhead* 129). Cameron felt satisfied in knowing that the mentor relationship that he chose to extend to Roark ended up in success that he was able to see for himself before he died. Roark felt satisfied in being able to open up his own office after following the instruction of his mentor.

This relationship between Roark and Cameron mirrors the relationship between many students and teachers. Although teachers go into their job fully aware that students will face troubles in their lifetimes, they opt to take on the mentoring role anyway. They teach their students all that they know and have to offer about the subject being taught and the potential applications for the future. And when a student is able to come back to a teacher and show him or her the achievements and the progress that have been made, the teacher can feel fulfilled in knowing that the ideas and skills that were taught to students are actually being employed by the students to increase their success in life.

In *The Fountainhead*, Rand also typifies a mentor relationship gone awry. Gail Wynand had originally been raised in a gang-infested section of Manhattan. Although he had no role models or mentors in his family, he excelled in school. But he excelled so much that it hurt his relationship with his teacher. She eventually “stopped noticing his presence; it seemed pointless, he always knew his lesson and she had to concentrate on the slower, duller children” (Rand, *The Fountainhead* 418). This teacher did not take the time to ensure that all of her students understood that she was truly there to ensure the well-being and education of all of the students. She left Wynand out to dry while she focused on ensuring that the rest of the students in the classroom were learning. Even though Wynand knew and understood the majority of the material that was being presented in the classroom, the teacher never took the time to establish a connection with Wynand that would have increased his chances for success. Instead, this classroom “was the last of his formal education” (Rand, *The Fountainhead* 419).

After leaving his formal education, Wynand gained employment with the *Gazette*, a local newspaper. This lasted until a point where the *Gazette* attempted to frame an innocent man, “the only honest man [Wynand] had ever met in his life” (Rand, *The Fountainhead* 422). Wynand set out across town to find a newspaper editor who had written “the most beautiful tribute to integrity he had ever read” (Rand, *The Fountainhead* 422). It was Wynand’s hope that he could tell the man who inspired a sense of integrity and honesty in him about this framing and that they could conquer it together. However, the editor did not even remembering writing the piece that Wynand

admired so much. Wynand realized that this editor likely did not truly mean what he said in the article, and this caused Wynand to lose hope in all things good.

Twice in his life, Wynand looked to someone as a mentor, and twice he was let down. His teacher did not care enough about him as a student to ensure his success through establishing a relationship with him. The newspaper editor chose to not become his mentor when Wynand reached out to him for help in learning about human integrity. Wynand never had the mentoring relationship that would have been useful to teach him how to become a productive man in the eyes of Rand. For the remainder of his life, Wynand felt contempt for the integrity of man and continuously worked against it. Partly because of his lack of mentor experience, Wynand ended up becoming the opposite of the person whom Rand would admire.

Despite the many positive things that can come out of a positive student-teacher relationship, Rand would warn against a student's reliance on the teacher. Clearly Rand would make the case that the mentoring relationship that exists between students and teachers is important when it comes to teaching students the skills that they will need in order to be successful in the world; however, the students need to learn these skills and not rely on the teacher to get them through situations all the time. The teacher must always remember that in teaching the skills to the student, the student is learning how to utilize these skills independently later in life. This relates back to Rand's concept of the earned versus the unearned that was explored in Chapter 2. A teacher needs to teach a student how to earn his or her own success, not to receive an unearned "gift" from the

teacher. If a student has trouble interacting with another person, the teacher should show this student how to interact with the person. The teacher may interact with the other person once to be an example to the student of how to deal with this situation, but the teacher cannot always interact with another person for the student. Teachers must remember that their role is to teach the skill and foster independence, not to perform tasks for the students.

This idea has a large bearing on the method that science teachers should use in the classroom. The lecture portion of a science class is where the teacher can give students the essential background information that has led to the conclusions that the scientific community hold to be the most accurate and best supported theories of today. This lecture time is also where students can learn about techniques that scientists have applied to come to these theories. However, once the students go to the laboratory section of the class, they receive the opportunity to test out their skills to see how well they have learned them. Although the teacher is still there to answer questions and make clarifications to the instructions, this is an opportunity for the teacher to begin letting the students use what they have learned and become more independent. This allows students to see the “material relevant to life-long learning” and to hone their skills gradually (Dahl and Mixer, 23). In its nature, science education allows for this constant independence for the individual and improvement of skills.

Chapter 4-Rand and integration of subjects

The third and final component of education in the U.S. that will be included in this thesis is the integration of subjects. The method that an elementary school teacher could easily integrate the various subjects that the students are being taught is straight forward. The same teacher has the same students for the vast majority of the school day. Drawing connections from something the students learned in the reading portion of the day to the social studies portion of the day can be done without too much effort because this teacher knows exactly what was taught during the reading portion of the school day. But secondary educators must be capable of performing this same sort of integration as well. Because there is so much that teachers need to teach in so many field of knowledge, “integration is the only way that the demanding content needs can be met without extending the work day/week” (Karubus). Integration of subjects allows teachers to extend the time that students spend learning a certain subject without increasing the length of the school day.

When various subjects have been integrated with each other in the different classrooms that a student will enter throughout the course of his or her education, the student will begin to see the connections that truly do exist between these subjects. This will be more useful than many of the small details that students learn within the classroom because the classroom subjects are integrated in the real world. Every day people encounter various examples of integration constantly: biology relates to the virus that gets someone sick, literature relates to the emotions that people experience when

they are concerned with illness and death, history documents the patterns of death and disease throughout time. One little component of someone's day can relate to so many different areas of intellectual inquiry in school. When a student leaves the classroom, he or she will constantly be exposed to a variety of subjects in all situations. Even if a student focuses his or her studies on a certain subject in order to become more familiar with it and can more easily see this subject in all situations, many other subjects will still be present in everyday life. Seeing how subjects can relate to each other in the classroom allows students to see and better understand the relationship that exists in the rest of the world outside the classroom.

In recent years, there has been an increase in the amount of integration that teachers attempt to include in their classrooms. In a microbiology lecture presented by John Dahl and Phil Mixter, they attempted a more integrative approach to the material that needed to be covered. They based their lecture off of the old television series *Night Gallery*. They used several paintings to begin to tell several different stories about microbiology in a similar fashion to the former television show (Dahl and Mixter, 23). But more importantly than how they went about teaching this lecture were the goals behind it.

Dahl and Mixter really desired to mix up the situation in the classroom. They wanted to ensure that students understood the impact that microbiology has on the rest of the world. It was their desire to create life-long learning by presenting "scientific content fused with history, ethics, public policy, and art" (Dahl and Mixter, 23). This statement

reveals the fact that these teachers believed that integrating the information about microbiology, which was necessary to cover so that the students would have a sufficient understanding of the subject, with information from various other subjects is what would allow these students to gain the most knowledge and understanding that would be beneficial in their lives. There was a certain excitement that was exhibited by the students, but these teachers were more focused on ensuring that the information that was being presented would be remembered by the students and understood to be a part of the larger picture of the world in which they exist.

After concluding the nuanced lecture format, Dahl and Mixter felt successful in achieving the goals that they had sought. Although they performed no empirical assessment of the lecture and had no idea of exact measurement of how much the students retained, they concluded that “this approach enhanced the relevancy of lecture material, piqued interest, and fostered retention” (Dahl and Mixter, 23). By including an integration of other subjects and ideas that can be seen from the study of other subjects, Dahl and Mixter not only increased the understanding that these students had in regard to the microbiology material, but they also increased their ability to become integrated members of the world once they graduate.

Integration of subjects has also become an increasing popular choice for English Language Learner students, or ELL students. ELL students are often at a disadvantage when coming into a school because they lack a proficient understanding of English, and many of them do not have a proficient understanding of their own native language

because their parents are often illiterate in both languages (Montgomery, 9). This puts these children behind in both the fully English classrooms and some of the ELL classrooms as well. Because these students have already started behind many of the other students at the same school, it is essential that a method be used that allows these students to be catch up. By integrating various subject and skills into the ELL classroom, these students are more likely to catch up to their classmates. In many ELL classrooms today, teachers are implementing the use of various skills, such as teaching students how to use various instruments (such as pens, calculators, protractors, rulers), in addition to the subject matter being covered in class (Montgomery, 11). By integrating this kind of instruction with the other education that these students are receiving, these students are much more likely to catch up to the other students in the school.

In addition to the increase in educating ELL students with the instruments and tools that are used both in the classroom and in the world outside of the classroom, teachers are increasing the amount of integrative subject matter that is going on in the classroom. Teaching ELL students is much more successful if these students become immersed in the subject matter over a consistent period of time (Karubus). As ELL students are being immersed in the English language, during the time spent in the ELL classrooms, it is beneficial to also immerse them in all the other subject areas that they need to learn with an integrative approach. This immersion produces a thematic style of teaching and learning that is helpful in letting students understand how the English language and all the other subjects that are being taught in school will be a consistent part of their lives in and out of school.

The idea of integrating across subjects can also be used to integrate ideas within subjects. Although it is important to integrate the things that are learned in a science classroom with the information that is learned in other subjects, integrating the various disciplines within science is also essential. Biology, physics, and chemistry are all separate disciplines within science, and they even constitute different majors in higher education. However, these are all still disciplines within the same subject area, and they need to be understood in context with each other. By creating a common theoretical framework to include all of these disciplines of science, a more efficient and better understanding of both the subject as a whole and its individual pieces is likely to be produced (Lewis, 5).

For science educators everywhere, this sort of integration within the subject is important. When each scientific discipline is understood to be a province of science as a whole, “it becomes more appropriate to consider the extent to which findings from *any* single discipline or ‘province’ can be generalized across science education” (Lewis, 6). By finding these concepts that can be generalized across the various disciplines, understanding one area helps the student to understand another area better. When a student understands the chemistry behind metabolic respiration, it is easier for a student to understand the process when looking at it from a biological standpoint, which I know to be true from my own experience. And a ripple effect can be seen from this process as well: as a student integrates the disciplines of science together to understand science better, this student can then integrate the scientific knowledge into other subject areas in order to gain a better understanding of them as well. As the student continues to integrate

the various subject areas, the increased understanding of how the world works will be obvious.

There are various instances throughout Rand's writing that indicate that she sees the benefits that would come from an education that integrates all the subject areas. At the very core of Rand's philosophy, she understands that "the task of man's consciousness is to *perceive* reality, *not* to create or invent it" (Rand, *Atlas Shrugged* 1074). And in perceiving reality, it is crucial to understand all of the components of reality and thus all of the subject areas of knowledge. If a person misses a piece of the integrative education and does not understand a piece of the puzzle, he or she will have to fill in this piece of information with his or her limited understanding. And this kind of understanding would be heading in the direction of inventing some of reality. Although it is not possible to understand everything about everything, the more a person has learned about the world, the more this person will be accurately able to objectively see and understand the world. And having an education where the various subject areas are integrated with each other allows people to also see how various components of reality interact with each other.

Rand also understands how utilizing various different subjects in combination with each other can be valuable to everyone in a well-informed society. She says the following about the New Intellectuals and how they integrate subjects in society:

"those who deal with the sciences studying nature have to rely on the intellectual for philosophical guidance and information: for moral values, for social theories,

for political premises, for psychological tenets and, above all, for the principles of epistemology, that crucial branch of philosophy which studies man's means of knowledge and makes all other sciences possible. The intellectual is the eyes, ears and voice of a free society: it is *his* job to observe the events of the world, to evaluate their meaning and to inform the men in all other fields" (Rand, *For the New Intellectual* 22).

In order for people to study things such as science, there needs to be a group of people, namely the New Intellectuals, who understand how scientific ideas and philosophical guidance work together. By integrating the subjects of science and philosophy together, the scientist is capable of gaining deeper insight into how scientific experiments lead to a better understanding of the world. Sure, a scientist could gain a certain understanding of the world through simply conducting experiment after experiment, and this would provide a reasonable and important understanding of reality. However, integrating other subjects, such as philosophy, into the scientific experimentation would draw in another element of reality to increase the full understanding of reality.

Thus, in order to become the New Intellectuals, with whom Rand wants to fill the world, people must see the world through an integrative approach. Because the world is integrative in its very nature, there is much more that can be learned by people if they are educated using techniques that integrate various subject areas, and then use this integrative information to truly understand the world.

Not only does understanding the integration of the world assist in the well-being of the individual, but it all helps to ward off certain negative consequences that come about when people refuse to employ reason as a method of seeing the world. An integrative education has so much to teach people, and this includes an understanding of how to see the world and how not to see the world. For Rand, “the irrational is impossible; it is that which contradicts the facts of reality; facts cannot be altered by a wish, but they *can* destroy the wisher” (Rand, *The Virtue of Selfishness* 31). The world that people live in is undeniably integrative. The more people are capable of understanding the integrative nature of the world, the less likely these people are to fall into the trap of wishing the impossible and destroying themselves as Rand predicts. While students are being educated, they need to learn to see integration in the world and to use this integration to avoid downfall in the future.

In the eyes of Rand, an elimination of an integrative education is a backwards step in the philosophical thought of humans. To eliminate integration would be to step back into the mind of the Attilas and the Witch Doctors of the world because “the last stand of Attila-ism, both in philosophy and in science, is the concerted assertion of all the neo-mystics that integration is impossible and unscientific” (Rand, *For the New Intellectual* 42). To think that integration is impossible is to think like the Attilas and the Witch Doctors instead of like the Producers. The Witch Doctors stand firm in their ideas about mysticism, but mysticism cannot see the relationship between each piece of evidence, each datum. Believing in mysticism relies on the concept of the unknown knowing (Hefner, 1), so naturally anyone looking at the world through a mystical understanding

will not see the link between all the integrated information in the world to lead to a conclusion. By looking at the way the individual components of the world interact, a person will escape the unknown knowing of the Witch Doctor in order to see the reality of the world as the Producer does because the Producer needs to know about concepts from all different areas of the world of knowledge in order to act in a manner that will be reflective of what he or she sees.

Even though there is a clear importance that exists in educating students in an integrative manner, the importance of gaining a strong science education cannot be lost in the mix. Rand's writings do not hold back when it comes to discussing the importance of science to the success of the individual. She believes that "scientific discoveries...fill men's physical needs and expand the comfort of men's existence" (Rand, *For the New Intellectual* 23). Rand believes that humans need science in order to fulfill their needs and their purpose in life. Science is not only beneficial because it provides the world with technology, medications, and jobs as many people seem to think. Science also teaches people how to think and how to use reason in order to see the world as it is. Because science is constantly attempting to explain the various phenomena that are going on in the world, scientists are constantly looking at the world as it is. Scientists perform experiments in this world in order to understand how things work in this world. Although experimentation involves some sort of manipulation, as certain components are held constant and others are allowed to fluctuate, this manipulation is only done in the interest of understanding the process behind the experiment.

Chapter 5-Love and religion

Despite the obvious favoritism that this thesis shows towards Ayn Rand, there are some components of her philosophy that are not necessarily perfect. Because of the extreme and steadfast viewpoint that Rand expresses, it is easy to see how some of the components of her philosophy strike people the wrong way. Her high praise of the often negatively viewed selfishness is not one of the components that this chapter will attempt to address because there are so many benefits that can be achieved through selfishness when it is understood through an objectivist lens. Rand is not irrational when she speaks about selfishness and its benefits for the people who employ it correctly.

In beginning to do research into objectivism and the ideas that Rand has about various subjects, such as love, it seemed that her viewpoints on some of these subjects were inconsistent with my personal opinions. In first reading what Rand had to say about love, it seemed as though she was pushing for a loving relationship that was focused on the individual solely. The only thing that people were looking for in love was a personal benefit for the individual and that nothing was sacrificed to be a part of a loving relationship. That people were only in love to see what they could get out of the relationship, and this was something that did not sit well with my own experiences. However, the more in depth I looked into Rand's ideas on love and the more I realized that some of these ideas were based on my opinions of some of her personal choices in her love life, the more I could understand that her idea of love is based on seeing another person who holds similar convictions as important.

Rand's ideas about love take an interesting viewpoint on an aspect of the human condition that many people consider to be one of the most selfless acts possible. Although many people consider love to be selfless, Rand would argue the counterpoint that love is the "selfish pleasure which one man derives from the virtues of another man's character" (Rand, *The Virtue of Selfishness* 31). In keeping with the ideas that Rand presents in her philosophy about the virtue of selfishness, Rand has discovered a way to establish love as a selfish interest that people pursue. For her, romantic love is based off of the values that an individual holds to be true. People love each other when they can see the values that they believe to be ethical in another person.

This selfish outlook on love is consistent with Rand's philosophy in the sense that it is an idea that is based on what an individual thinks is the best value a person can have. But does it remain consistent with her idea that people should neither sacrifice nor receive sacrifices from other people? Not according to the manner in which Rand lived out her love life.

Although Rand wrote and spoke numerous times about the love that she had for her husband, Frank, their relationship was never a perfect picture. Because of the selfish attitude that Rand took in regard to the relationship with her husband, there are many aspects of the relationship that should be considered unhealthy components of a romantic relationship. Rand and Frank lived in California for an extended period of time in their marriage while Rand was working on movie scripts. During this time, Frank grew a garden in the backyard of their home and loved his life in California. But once Rand

switched her focus from movie scripts to philosophical writings and novels, she had a strong desire to move back to New York in order to enhance her creative writing skills. Even though Frank wanted desperately to stay in California, “his preferences meant little compared to hers” (Burns, 138). This attitude that Rand presented in regard to her husband and his opinion about the best place for them to live does not fall within the scope of what true, romantic love should be like. Rand pushed and pulled her husband around in various instances. This is a component of any relationship, but when it is done to the extent that it was done in this relationship there tend to be problems.

In addition to being the boss of Frank, Rand was having an affair with her intellectual heir, Nathaniel Branden. Even though Rand was open about the affair and Frank was aware of everything that was going on, this did not make the situation any better for Frank (Burns, 159). Frank was wild about his wife, even to the point where he essentially let her do whatever she wanted, but this does not mean that he was wanted to share his wife with another man (Burns, 159). Rand attempted to explain the situation between herself and Branden as her appreciation of the intellectual value that she viewed in Branden. According to the way in which she defined love, Rand was basically telling her husband that she loved another man. It is difficult to get a grasp on how Rand could say that she loved her husband as much as she did when she was giving her love and affection to this other man. It only took four years after the affair began for it to end. Only ten years after the affair ended, Rand and Branden had an intellectual mishap where she accused him of failing in his professional responsibilities, deliberately deceiving

people, and exploiting her financially that ended their relationship with each other completely.

What is important to note here is that Rand's desire to force her husband to sacrifice to her in various ways should not have any bearing on understanding her ideas on love completely. In seeing the way that Rand treated her husband, I assumed that Rand's philosophy on love would be something cynical that would destroy one of the most wonderful relationships that exist as a part of the human condition: romantic love. And because of my prejudice, I saw her philosophy in this way in my first understanding. But Rand's personal choices and actions do not null and void the philosophy that Rand has about love.

Her ideas about love, that it exists as a reflection of an individual's respect for someone else's choice to be an ethical and value-based person, can still be followed by the New Intellectuals despite the fact that Rand chose to disregard some of the elements of her philosophy in her own love life. Loving someone as a reflection of the ethical standards that another person holds is both selfish and able to be seen in the reality of the world, which makes it consistent with objectivism and with what people see day to day. Because some people are in romantic relationships with people who do not share the same ideas of what constitutes an ethical value, these relationships are not based on a trader relationship where people are trading love for the pleasure that one gets from seeing their personal values in another person and are not successful (Rand, *The Virtue of Selfishness* 31). There are couples who are in successful relationships that are not based

on a respect for mutual values between the two. However, Rand thinks that people can only be in love when they value each other for who they are and what they value, and this is more often what can be seen in successful relationships.

Another aspect of the world in which people live that can be difficult to reconcile with Rand's philosophy is religion. Although Rand discovered her own way of reconciling the two, through atheism, this does not mean that it is impossible to be both religious and a follower of the teachings of objectivism. In *For the New Intellectual*, Rand discusses religion and its implications of the life of a human being. She states that:

“The good, say the mystics of spirit, is God, a being whose only definition is that he is beyond man's power to conceive—a definition that invalidates man's consciousness and nullifies his concepts of existence...Man's mind, say the mystics of spirit, must be subordinated to the will of God... Man's standard of value, say the mystics of spirit, is the pleasure of God, whose standards are beyond man's power of comprehension and must be accepted on faith....The purpose of man's life...is to become an abject zombie who serves a purpose he does not know, for reasons he is not to question” (Rand, *For the New Intellectual* 39).

This quote is essentially making the claim that a person who has sacrificed his or her life to a god (or gods) is unable to think for his or herself. Once a person has decided to follow this divine being, the purpose of this person's life is to follow the teachings of the

religion without question. If one is to look at religion from this extreme point of view, then it is difficult to be both a New Intellectual and a religious person.

However, this claim is made under the assumption that the religious person is extreme in his or her religious views and devotion. Even though there are some people who operate in this regard when it comes to religion, there are many people who do not. But if someone is capable of taking from religion the things that he or she believes will be useful to the fulfillment of life, then this extremist attitude towards religion is unnecessary. Not all of religion is useful in an objectivist sense of the word, for some people it simply fills a spiritual need that they have. But there are lessons that people can learn from being a religious individual. Many religions place an emphasis on individual spiritual reflection with a god or gods, and this reflection can teach people more about themselves and their wishes and desires. It is possible for someone to take the religious teachings that have been presented to him or her and employ in a manner that supports Rand's idea of fulfilling the needs of the individual. In individual prayer time with a god or gods, a person can utilize this time to discover the reality of what the individual feels is truly important.

Also, there are many examples of people who do not follow the exact wording of a religion. If this were true, there would only be one sect of Christianity. However, it is clear that this is not the case because there are many different sects of Christianity. Although the Church of England still maintains various elements that are similar to Catholicism, this Church broke away from the Catholic Church because there were

elements within Catholicism (most specifically the inability to divorce) with which the members of this Church did not agree. Instead of blindly following the rules and regulations of Catholicism, the Church of England was created to allow the elements of Catholicism that were considered agreeable and the elements of the Protestant Reformation that were found agreeable. The members of the Church of England were still religious, but they did not blindly follow religious teachings without any thought as Rand seems to argue in her writings about religion. In the same manner, religious New Intellectuals have the freedom to not be slaves to every aspect of their religion. They can choose the aspects that make the most sense to them and will likely benefit them the most and combine these ideas with Rand's arguments for the individual.

In the same book where Rand makes her claim against religion and following the teachings of a god, she makes another quite interesting claim that is not used in the context of religion in the book but can be understood in that context. In speaking of the many disciplines that humans should educate themselves in, she states that "a free society has to be an informed society" (Rand, *For the New Intellectual* 22). Although Rand was speaking of educating oneself in the various tradition disciplines like science, philosophy, math, etc., this concept can also be used in an argument for the utilization of religion. Even if someone does not fully agree (or agree at all) with a religion or the idea of religion in general, there are still lessons that can be learned if the learning is done with an open mind. If nothing else, it can be a lesson in what not to do and how not to proceed forward in one's life. But very often it will lead to other more positive and productive lessons learned. It is not necessary for every New Intellectual to become a religious

person, but the ones who are have the additional opportunity to learn about the individual, other individuals, and the world.

In order to learn the most that an individual can, it is essential to look at the various aspects of an idea. Looking at the world through an objectivist lens is a good starting place as one attempts to understand the workings of the world because it allows the individual to take in the information that is presented directly from the world. One can understand the world by simply looking at the world and how it functions. But in order to fully understand the world, humans must

“avoid the danger of a narrow concept of the universe and of life, a concept which reduces them to the single realm of recurring facts and neglects the irreplaceable part played by persons, who are by definition unique...if knowledge is to acquire this [understanding], it must not remain confined to the objective study of facts and laws, it must move inwards through reflecting on the conditions which make it possible for the mind to apprehend facts and laws” (Abele, 131).

An objective outlook on the world is an important place to begin to understand the world, but without understanding the basis behind the human understanding of facts and laws, there is not true and complete understanding of the world. Religion is a vital part of the process in understanding the world because it reveals this inward reflection. Religion teaches people about both the world and the individual.

For people who consider themselves to be Christian, the ability to listen to the word of God allows for a better comprehension of the human condition because humans

were created in the likeness of God. In gaining better insight into the working of God, Christians are capable of gaining insight into the way that humans think and act. The gospel stories include dozens of stories about Jesus interacting with individual people, and these individual people are doing and saying things that help the reader to understand the way that humans behave and think. This can help Christians better understand the people around them and themselves as individuals as well.

This is the very principle behind religion especially when someone goes at religion with an individualistic approach. This person will be going into the experience with a mindset about what they can gain from the experience or life decision (depending on the extent of the time frame spent within the religious experience). Although the religious community often also gains something from the presence of an additional person, an individualistic approach to religion allows the person to utilize the information that makes sense to that person instead of just following every idea without concern for the reason behind as Rand suggests many religious people do. Religion does not necessitate a mind simply focused on things outside of the individual as Rand believes it does.

Conclusion

In exposing her philosophy to the world, Rand wanted to teach the people of the world how to live. And she did not just want to show how to live in a general sense but how to live for the individual. Because for Rand, the individual is the essence of life, and it is only when the people of the world come to the understanding that each human being is an individual, autonomous person that the world can succeed as a whole. Without each individual understanding that work must come from the individual, as “nothing is given to man on earth expect a potential and the material on which to actualize it”, no one will get anything done (Rand, *The Virtue of Selfishness* 23). It is the use of reason by the individual that will be the source of this success.

The classroom is the perfect location for students to be able to learn about the ideas behind Rand’s philosophy and to see methods through which this philosophy may be implemented. Although some of the beliefs and ideas that people hold may true have come from an inter-reflection that had no bearing on outside opinions of teachers, parents, and mentors, most of these beliefs and ideas came from an outside source. Whether it was one’s dad telling him or her that hard work was key to success or seeing that his or her dad works hard and is successful because of it, the value that someone places upon hard work has come from the outside. Thus, the classroom is a place for teachers to show their students Rand’s ideas about self-determination and success.

There are problems that persist within classrooms and schools, such as the unforeseen consequences of the NCLB Act. But despite everything that works against

students in classrooms, their opportunities to learn both the subject matter of the class along with the life-long lessons, which are arguably more important than the subject matter, are present. And for Rand, this above all is essential to the success of the individual. Students can go out on their own to read what Rand has written in an attempt to live that she would say is the most successful, but having a teacher that the student looks up to who is living out Rand's philosophy, has established the appropriate level of the mentor relationship with the student, and integrate subjects the way they exist in the real world affirms the student's understanding that objectivism will help lead to a successful life.

Objectivism and proper education go hand in hand. Even though Rand places the largest emphasis of her philosophy on the importance of the individual, going to school and gaining an education from a mentor is necessary to see the world. The more education a person has received, the more clearly this person can use his or her reason in order to truly understand the world. And this true understanding of the world allows the individual to be a Producer and achieve success.

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