Student Conceptions of Race and Racial Attitudes

The United States continues to experience growth of its racial minority population, and with it, staggering racial disparities in wealth, health, and well-being. The persistence of the systemic and structural racism which create such disparities, coupled with increased attention on social issues which disproportionately affect minority groups, such as police violence, has led to heightened civil unrest in recent years. As a result, it is crucial that the relationship between race conceptualization and attitudes toward racial minorities, as well as the influence of social institutions on these variables, are studied. The present research examines how American college students conceptualize race and the relationship between these conceptions and their attitudes towards racial minorities. While previous research has heavily focused on attitudes towards Black Americans, this paper expands to all racial minority, or non-white, groups. It additionally explores the relationship between these conceptions and education. Based on research from various disciplines, this paper forwards the view of race as a social construct and argues that the conception of race as a biologically determined category coincides with decreased awareness of systemic racism and corresponding racial issues, as well as decreased recognition of the impact of these issues on the social status of racial minority members.

In Western culture, including the United States, the conceptualization of race has traditionally been rooted in biological essentialism. At its core, essentialism is the belief that social categories reflect an underlying essence (i.e., nature) that is necessary for the existence of such categories. Therefore, as it relates to the conceptualization of race, essentialism is the understanding of race as an innate, fixed, genetically and biologically rooted source of human division.[1] Over a century ago, W.E.B. Du Bois expressed increasing concern for race being used as a biological explanation for social differences between race groups. Since then, and

particularly in recent history, scholars across disciplines have increasingly found and demonstrated that racial categories do not exist as universal, natural, or biological distinctions, but as socially defined groups—that is, race is socially constructed.[2] Despite the evidence presented by these scholars that racial categorization is a product of historical and cultural context, and agreement that such categories cannot be reliably measured in a biological sense, and are not genetically discreate or scientifically meaningful, research suggests that such biologically-rooted understandings of race persist among the U.S. public.[3] The prevalence of such views may be attributable to the misrepresentation of race in or the lay public's misunderstanding of heavily publicized scientific research, such as the Humane Genome Project, and resulting popularization of DNA testing in the last two decades.

This paper conceptualizes these two views of race—social constructionism and biological essentialism—as opposing ends of a continuum of an individual's understanding of race. It is important to note, however, that the view of race as a social construct does not negate its importance as an indicator of cultural orientation and social identity, nor its meaningful use in studying the experiences of and patterns among different racial groups.[4]

The historical analysis of the implications of essentialism suggests that this view of race is more likely to be used in justifying racism and supporting racist ideology. Consequently, if constructionism is the opposite of essentialism, it should subside with increased awareness of social issues related to race and a greater understanding of the forces of minority social status. Previous research has shown that essentialism correlates with stereotype endorsement of outgroups, prejudice towards Black people, attribution of behavior of outgroup members to dispositional causes, an increased acceptance of racial inequalities, and decreased interest in interacting with racial outgroup members.[5]

The present research aims to build on earlier work by further investigating patterns of race conceptualization, the implications of these opposing views, and the influence of education on which view is held. This paper shall pursue this goal by first presenting a review of the literature, then examining conceptions of race and attitudes towards racial minorities using data collected from a survey of university students. The findings of this analysis, and their implications, will be discussed further in the conclusion.

Literature Review

Across disciplines such as sociology, anthropology, social psychology, biology, and genetics, scholars have contributed to the discussion on racial categorization and whether racial categories are inherently natural and biologically distinct. The consensus among these scholars is that racial categories are not genetically distinct and therefore cannot be reliably measured nor scientifically meaningful as biological divisions of humankind.[6] Rather, racial categorization is a product of its historical and cultural context. Dr. Martin Marger defines racial categorization as the arbitrary selection of certain hereditary, physical characteristics, such as skin color, to differentiate groups of people from each other.[7] Similar definitions, which serve to emphasize the role of social context in racial group categorization, can be found across many sociological, social psychological, and anthropological texts.

Evidence which supports the social construction of race is abundant. Beginning with a historical analysis of racial categorization, one example can be found in the social status of white ethnic groups in the United States. Until the early twentieth century, Irish Americans were not considered white like other European Americans. Other white ethnic groups, such as Italian and Jewish Americans, were also historically considered to be non-white, or “less white,” in the United States.[8] Over time and through assimilation, these white ethnic groups slowly came to be

considered white, but not before being subject to anti-immigration sentiments and racism. The history of racial categorization of white ethnic groups in the United States is only one example that demonstrates the malleability of racial categories.

Further demonstrations of the influence of social context on racial categorization can be found in many places. For example, Dr. Eleanor R. Townsley of Mount Holyoke College successfully demonstrates the social construction of race to her students through a classroom activity. In this activity, students are presented with photos of persons whom they must place into the racial categories listed on the US Census—inevitably, students find themselves disagreeing on the racial categorization of several individually, particularly those considered "racial ambiguous."[9] Essentialism would suggest that racial categories are consistent and, being biologically determined, should be easy to identify based on physical characteristics. However, this is not always the case, as participants in this professor's classroom activity have discovered.

Although racial categorization based on physical appearance is not always "easy" or consistent, those who hold essentialist views may turn to examples of perceived biological and genetic differences as evidence for their understanding of race. However, biologists and geneticists have also rejected the idea that biological differences belie racial categories.[10] Differences between racial groups, such as differences in health outcomes, are often misinterpreted as being rooted in innate, biological differences between these groups, but can often be explained through careful examination of social inequalities. For example, members of racial minorities are more likely to live in impoverished neighborhoods and have less wealth than their majority counterparts, which may lead to decreased access to adequate amounts of nutritionally beneficial foods, thereby contributing to differences in rates of health outcomes, such as obesity. Dr. Christopher Kuzawa and Dr. Elizabeth Sweet found that "exposure to racism

in one's own lifetime includes a higher risk of hypertension, diabetes, stroke, and other conditions."[11] Indeed, many of these conditions which are experienced at higher rates by racial minorities, are associated with and can even result from consistently heightened levels of stress and anxiety. As individuals of racial minorities are more likely to experience increased stress and anxiety due to experiences of racial prejudice and discrimination, and systemic racism, their likelihood of developing such conditions throughout life increases.

Some of these differences between racial groups that are commonly misinterpreted as indicators of inherent, biological racial categories, can additionally be explained by epigenetics, the study of gene expression in response to environmental conditions. For example, Dr. Clarence Gravlee argues that race can "become biology" through a study three groups of women: US-born white women, US-born Black women, and African-born Black women. This study compared the birth weights of children born to women in each group, in which higher birth weights represent a positive indicator of health. The results of this analysis revealed that while birth weights of children of US-born Black women were lower on average than those of their white counterparts, birth weights of children of African-born Black women were relatively equivalent to those of children of US-born white women. However, this only remained true for the birth weights of African-born Black women when they initially immigrated to the United States. After living in the US for several years, the average birth weight of children of African-born Black women began to resemble that of children of US-born Black women. [12] This study illustrates how social forces, such as being subject to systemic racism, can have consequences which are easily misinterpreted as biological differences between groups.

Despite empirically supported explanations of racial health disparities, among other evidence which discredits the biological basis for race, such as historical analysis of racial

categorization, research indicates that the essentialist views of race and genetic interpretations of group differences persist among Americans.[13] The persistence of these views is problematic because they can be used to justify racism and support racist ideology as they historically. The belief in innate, genetic differences, which is foundational to essentialist views of race, allows for belief in the innate superiority and inferiority of certain groups. From the seventeenth to nineteenth centuries, essentialist views of race, accompanied by belief in the innate superiority of white people, served to justify slavery and the horrific mistreatment of slaves in America. Such beliefs were later foundational to racist laws, such as the segregation and anti-miscegenation laws of the twentieth century United States. Not only have these views served to maintain social hierarchy and dehumanize certain groups, they have also been fundamental to genocidal movements.

While the concept of eugenics may be traced back to as early as the fifth century, the term was first coined and defined by Francis Galton in 1883. Galton promoted eugenics as a method to control human evolution, through which he believed a superior human race could be created by the regulation of marriage and therefore procreation. Galton's eugenics encouraged the selective breeding of only those individuals with desirable physical and mental characteristics—and the prevention of procreation with or among those with undesirable characteristics. While eugenics failed to take a firm hold in Galton's home country in the United Kingdom, his work spread through Europe and the United States, where it was more widely embraced. In 1896, the state of Connecticut made it illegal for individuals with epilepsy or those considered "feeble-minded" to marry, and in 1911 the Race Betterment Foundation, which went on to host multiple eugenics conferences, was established along with a "pedigree registry." The most horrific application of eugenics, however, took place in Nazi Germany. The eugenics

movement of Nazi Germany, which sought to eliminate specific groups in order to improve the Aryan master race through the practice of racial hygiene, was rooted in essentialism.[14]

Some researchers have put forth possible explanations as to why essentialist views of race persist, suggesting that increasing media coverage on research which explores genetic influences on human characteristics, particularly that which accompanied the Human Genome Project, may encourage genetic theorizing of group differences, and thereby impacting racial attitudes.[15] While the purpose of the present study is not to challenge the complex advances made by geneticists, the interpretation of such information by the less sophisticated media and lay public may lead to its potentially dangerous misuse and encourage prejudicial and discriminatory attitudes. Therefore, it is crucial that scientists be cautious and meticulous in their provision of such information. Further, regarding the persistence of essentialist views, Dr. Katya Gibel Mevorach suggests that it is easier for many to believe in biological explanations of group differences than to acknowledge and deal with issues such as racism and racial inequalities. Belief in essentialist views of race allows members of the dominant group to absolve themselves of feeling any guilt for racial inequalities, and thus removes a psychological and emotional burden.[16]

Furthermore, some academics posit that the persistence of such views is due to a failure of educational curriculum. According to Dr. Jennifer Pierce, essentialist views persist because the concept of race as a social construction has yet to make its way into the curriculum of high schools across America, and even postsecondary students may receive mixed messages within textbooks.[17] One university professor found that many college freshmen had yet to be exposed to the social construction of race before joining his class.[18] This would support Pierce's explanation that constructionism has yet to be incorporated in educational curriculum below the

postsecondary level. Unfortunately, this professor found that even those students who strongly agreed with the constructionist view of race at the end of his course would still, at times, reverted to biological explanations of group differences.[19] This demonstrates just how pervasive and persistent these misconceptions are, both among and within individuals. As these discussions suggest, essentialist views of race are being formed before students reach university classrooms. The early development of essentialist views in individuals makes it even more difficult for individuals to grasp constructionism later.

Clearly, academic discussion and research on the opposing conceptualizations of race is generous. Surprisingly, on the other hand, research on the consequences of these views on racial attitudes is not as numerous, and far less research exists which examines the relationship between education and the conceptualization of race.

Dr. Celeste Condit and colleagues responded to concerns that media coverage of the Human Genome Project and subsequent genetic theorizing among the media and lay people would lead to increased prejudicial and discriminatory attitudes. They found that, when primed with a message linking race, genes, and health, respondents demonstrated increased racist attitudes.[20] Further research by Dr. Johannes Keller found, more broadly, that biological essentialism is associated with greater stereotype endorsement—this held true when applied to gender, race, and even fictional outgroups.[21] Another study focused on genetic lay theories and found genetic theorizing of racial group differences is associated with increased prejudice towards Black people; Dr. Toby Epstein Jayaratne and colleagues questioned participants on whether they believed genes explain differences in terms of the drive to succeed, math ability, tendency to act violently, and intelligence, between white and Black people. The results of this study indicated that a surprisingly large percent of Americans endorse genetic theories of racial

group differences and concluded that the more participants endorsed genetic lay theories, the more prejudice they expressed towards Black people. The researchers also noted that higher levels of education are associated with lower prejudice towards Black people on both prejudice measures. [22]

More recently, a similar study found the conception of racial categories as being biologically distinct to be associated with an increased acceptance of racial inequalities and a decreased interest in interacting with racial outgroup members.[23] Unlike the previous study by Jayaratne and colleagues, Dr. Melissa Williams and Dr. Jennifer Eberhardt sought to examine the conception of racial categorization independent of genetic theorizing. Findings revealed that more negative attitudes towards Black people were associated with more essentialist views of race; Additionally, researchers noticed that male respondents consistently exhibited more essentialist views of race than did female respondents.[24]

Research Questions and Hypotheses

In attempt to further investigation of the relationship between race conceptions and racial attitudes, in addition to explore the relationship between education and race conceptions, the present research sought to answer the following questions: 1) Are essentialist views of race associated with increased negative racial attitudes? 2) Is increased education associated with decreased essentialist views of race? 3) Does increased completion of coursework which addresses race and ethnic relations decrease essentialist views of race? The corresponding hypotheses were that: (H1) Students who hold more essentialist views of race will hold more negative racial attitudes, (H2) increased education will result in students being less likely to hold essentialist views of race, and (H3) students who have not participated in courses which address race and ethnic relations will be more likely to hold negative racial attitudes.

Methodology

Data were collected using an online survey, which was distributed via email to a random sample of 400 University of Evansville students and took approximately 10-15 minutes to complete. To ensure anonymity, IP addresses were not collected and only the student researcher and faculty sponsor had access to the collected data, which was stored securely. Completion of the survey was completely voluntary, no compensation was offered, and students were able to withdraw at any point. This information was provided to respondents in the informed consent. To be eligible to participate respondents had to be at least 18 years old, a current student at the University of Evansville, and had to indicate they had read and understood the informed consent. Respondents who did not meet these criteria were immediately dismissed from the survey. The data collection period lasted for two weeks during October 2018, during which two reminder emails were sent to sampled students after an initial email; Students were not able to complete the survey more than once.

The primary variables analyzed were: 1) race conceptualization, 2) racial attitudes, 3) year of study (i.e., class standing), and 4) the number of courses completed in which race and ethnic relations were discussed. Additionally, demographic information, including age, gender, and major, were also collected.

To measure race conceptualization, a modified version of the Race Conceptions Scale ("RCS"), developed by Williams and Eberhardt was used. The RCS was originally developed to measure the extent to which respondents considered racial categories to be "biological, natural, easily discernable, stable across time, stable across contexts, and stable within individuals."[25] Following pilot testing of intended measures, it was determined that scale items corresponding to the quality of "stable within individuals," produced confusion among respondents and

contributed little to the internal reliability of the measure. Coupled with ensuring the survey would not take more than twenty minutes in order to reduce dropout rates, these corresponding items were removed. Thus, a modified RCS, which measured the extent to which respondents considered racial categories to be biological, natural, easily discernable, and stable across time and context, was used. The modified RCS (Appendix A, Section 1) consisted of fifteen items. Respondents were then asked to indicate the extent to which they agreed or disagreed with each item using a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." Items were worded so that a higher score (i.e., greater agreement) indicated a more essentialist view of race; Conversely, a lower score indicated a more constructionist view of race.

To measure racial attitudes, two different measures were combined to form the Racial Attitudes Scale ("RAS"). The RAS consisted of the Color-Blind Racial Attitudes Scale (CoBRAS), which has not been used in previous studies of this nature, and the Modern Racial Prejudice measure. In its construction, the CoBRAS was designed to measure awareness of racial inequalities and privileges, institutional discrimination, and blatant racial issues and was found to be an indicator of racial prejudice.[26] The Modern Racial Prejudice measure was designed to determine the extent to which respondents hold black people responsible for their lower status.[27] Both measures were modified before being included in the RAS, in order to ensure the survey could be completed in less than twenty minutes and to assess attitudes towards racial minorities in general, rather than just towards Black people. The RAS (Appendix A, Section 2) consisted of 15 total items. Respondents were then asked to indicate the extent to which they agreed or disagreed with each statement using a 5-Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Items were worded so that a higher score indicated more negative racial attitudes, while lower scores indicated more positive racial attitudes.

Additionally, students were also asked to indicate their year of study (i.e., "freshman," "sophomore," etc.) and whether they had completed a course in which they had discussed race and ethnic relations. If respondents answered yes to the later, they were also asked to indicate how many of these courses they had completed. These measures were collected in the last section of the survey, along with demographic variables such as gender, race, and age.

Over the two-week data collection period, 167 students responded to the survey. Of these 167 respondents, only 111 completed the survey entirely or almost entirely (i.e. with all but one or two demographic questions answered). However, 20 of the original 167 respondents completed the entire RCS before dropping out of the survey; the responses of these 20 students were kept in an additional data set for further analyses after primary analyses were run. With the total number of respondents at 111, the completion rate was 27.75 percent. Relative to statistics reported on the University of Evansville website, women were overrepresented, as well as white respondents. However, it is important to note that sex is reported on the University of Evansville website as gender, and international students are considered a racial category, regardless of their racial identity. Sample characteristics are listed in Table 1, below.

Table 1: Sample characteristics (N=111)

	Percentage	*Frequency*
Gender		
Male	26.1%	29
Female	68.5%	76
Other/Prefer not to answer	4.5%	5
Missing	0.9%	1
Year of Study (Class Standing)		
Freshman	25.2%	28
Sophomore	19.8%	22
Junior	24.3%	27
Senior	20.7%	23
Other (5^{th} year + seniors)	9.0%	19
Missing	0.9%	1
Race		
White/Caucasian	82.0%	91

Black/African America	2.7%	3
Native American	0.9%	1
Hispanic	3.6%	4
Asian/Pacific Islander	5.4%	6
Other	4.5%	5
Missing	0.9%	1
Academic Major		
Business	14.4%	16
Education	4.5%	5
Engineering/Computer Science	7.2%	8
Fine/Performing Arts	9.0%	10
Health	26.1%	29
Humanities	8.1%	9
Natural Sciences/Math	14.4%	16
Social Sciences	10.8%	12
Other	3.6%	4
Missing	1.8%	2

Findings

Key variables of the present research were race conceptualization, measured using the Race Conceptions Scale, and racial attitudes, measured using the Racial Attitudes Scale. Descriptive statistics for the RCS and RAS are presented in Table 2, below. The average RCS score, in which a higher score indicates more essentialist views of race, was 2.8. Additionally, reliability analysis of the RCS indicated high internal consistency of items (Cronbach's $\alpha = 0.814$). Interestingly, the 20 respondents who dropped out of the survey early, but after completing the RCS, had a higher average RCS score (3.42) than those that did complete the survey. Moving forward, the average RAS score, in which a higher score indicates more negative racial attitudes, was 2.3. Additionally, reliability analysis of the RAS indicated high internal consistency, as well (Cronbach's $\alpha = 0.913$).

Table 2: Descriptive Statistics of the RCS and RAS (N=111)

Measure	*Mean*	*Standard Deviation*	*Minimum*	*Maximum*
RCS	2.8	0.56	1.53	4.27
RAS	2.3	0.74	1.00	4.47

While exploring the data, a possible relationship between gender and the RAS was observed; Male respondents scored higher (2.72) on the RAS than both female respondents (2.11) and respondents who chose not to identify as male or female (2.33). The results of a one-way ANOVA revealed this difference to be statistically significant ($p<0.05$). Another possible relationship was observed between academic major and RAS. Table 3, below, shows the average RAS score for each measure, arranged by descending average scores. The results of a one-way ANOVA revealed this relationship to also be statistically significant ($p<0.05$).

Table 3: Major and RAS

Major	*RAS Mean Score*
Fine/Performing Arts	1.73
Humanities	1.80
Other	1.97
Social Sciences	2.06
Education	2.29
Natural Sciences/Math	2.39
Health	2.45
Business	2.57
Engineering/Computer Science	2.59

Hypothesis Testing

The first hypothesis proposed that students who hold more essentialist views of race would hold more negative racial attitudes, predicting a positive relationship. Examining this hypothesis, race conceptualization, which was measured by the RCS, served as the independent variable and racial attitudes, which was measured by the RAS, served as the dependent variable; A correlation and linear regression were run. The results of the correlation yielded a R value of 0.365 which indicated a weak-to-moderate positive relationship that was statistically significant ($p<0.05$). Additionally, the results of the linear regression yielded a R^2 of 0.133, which indicates that approximately 13 percent of variation in the dependent variable, racial attitudes, can be explained by the independent variable, perceptions of race. The F-statistic was 16.76 which, with

degrees of freedom 1 and 109, was greater than the F-critical of ~ 3.92, indicating a statistically significant relationship ($p<0.05$). Therefore, the null hypothesis of no relationship was rejected. This relationship is depicted by the scatter diagram with a line of best fit presented in Figure 1.

Figure 1: RCS and RAS Scatter Diagram (N=111)

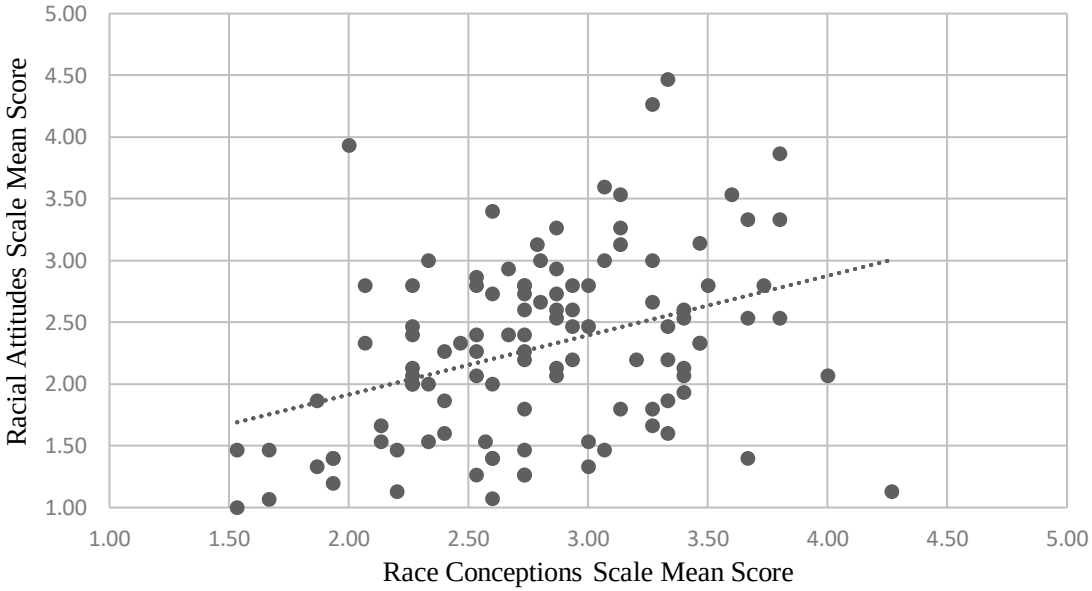
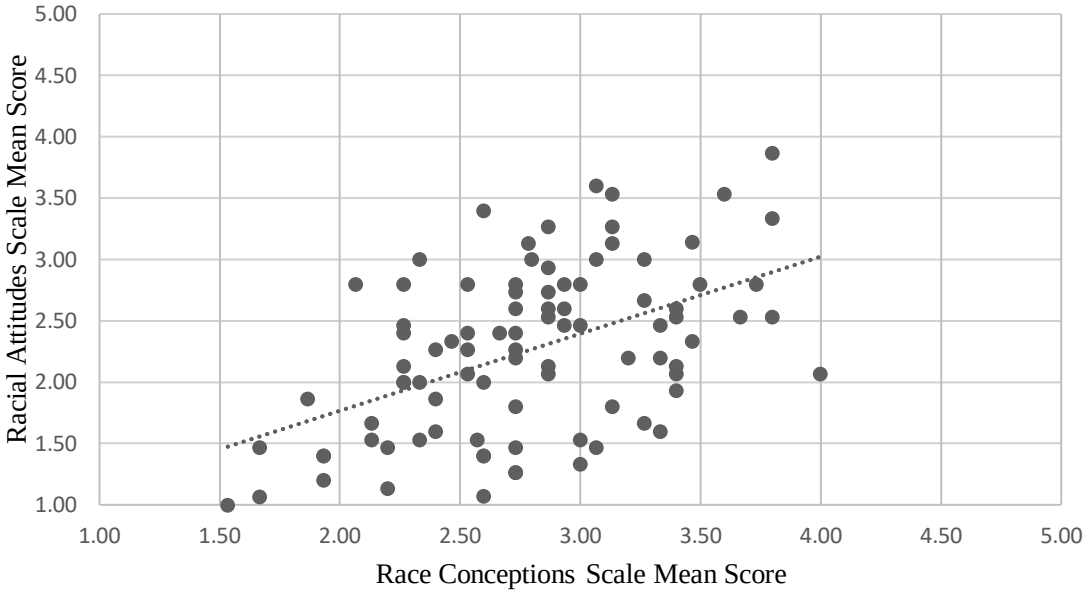


Figure 1, however, has several noticeable outliers. It was speculated that there would be fewer of these outliers if all non-white respondents were filtered out. The scatter diagram of the relationship between perceptions of race and racial attitudes, using only the data of white respondents is depicted in Figure 2.

Figure 2: RCS and RAS Scatter Diagram, White Respondent Only (N=91)



As seen in Figures 1 and 2, when filtering out all non-white respondents, the relationship between perceptions of race and racial attitudes becomes stronger. Additionally, after setting a filter for only white respondents, the results of a correlation yielded a higher R value of 0.495, indicating a moderate positive relationship. Similarly, the R^2 value almost doubled from 0.133 to 0.244, meaning that almost 25 percent of the variation in the dependent variable, racial attitudes, can be explained by the independent variable, perceptions of race, when looking at only white respondents. This relationship was also statistically significant ($p<0.05$).

The second hypothesis proposed that students who had a greater amount of education, measured by year of study (i.e., class standing) would hold less essentialist views of race, predicting a negative relationship between the independent variable, year of study, and the dependent variable, perceptions of race. Both a mean comparison and one-way ANOVA were used to examine the relationship. The mean comparison table is presented in Table 4, below. The mean comparison table reveals that as class standing increases the RCS mean score decreases, indicating a more constructionist view of race. The results of the ANOVA yielded an F-statistic

of 3.580 which, with degrees of freedom 4 and 105, was greater than the F-critical of ~ 2.45, indicating a statistically significant relationship ($p<0.05$). Therefore, the null hypothesis of no relationship was rejected.

Table 4: Year of Study and RCS Mean Comparison

Year of Study	*RCS Mean Score*
Freshman	3.11
Sophomore	2.76
Junior	2.74
Senior	2.63
Other (5^{th} Year + Seniors, Graduate Students, etc.)	2.52

The third hypothesis proposed that students who had not participated in courses which address race and ethnic relations would be more likely to hold negative racial attitudes. Whether or not respondents had competed a course in which race and ethnic relations were discussed, served as the independent variable, and racial attitudes served as the dependent variable. Both a mean comparison and one-way ANOVA were used to examine the relationship. Those who indicated they had completed a course in which they had discussed race and ethnic relations, did have a lower average score on the RAS (2.23) than those who had not (2.40). However, the results of the ANOVA yielded a F-statistic of 1.324 which, with 1 and 108 degrees of freedom, was not greater than the F-critical of ~ 3.92, indicating that this relationship was not statistically significant ($p>0.05$). Additionally, a linear regression was run to test for a relationship between racial attitudes and how many courses in which race and ethnic relations were discussed. The results of the linear regression yielded a R^2 of 0.010, which was not statistically significant ($p>0.05$). Therefore, the null hypothesis of no relationship could not be rejected.

Discussion

The guiding research questions of the present study sought to investigate the relationship between race conceptualization and racial attitudes, as well as the relationship between education and race conceptualization. In order to answer these questions, three corresponding hypotheses were formed, and data was collected via a survey of 111 college students. Two of the three central hypotheses were supported by the findings.

Testing of the first hypothesis revealed a significant relationship between race conceptualization and racial attitudes, that was consistent with expectations. The results confirmed that students who held more essentialist views of race also exhibited decreased awareness of systemic racism and corresponding racial issues, as well as decreased recognition of the impact of these issues on the social status of racial minority members. When examining the linear regression scatter plot, the presence of outliers was noted. It was additionally predicted that these outliers may consist mostly of racial minority members, as the need to maintain positive ingroup relations while also conforming to the dominant group perception could result in conflicting race conceptualization and racial attitudes. Indeed, when all non-white respondents were filtered out, almost all outliers disappeared, and the relationship became noticeably stronger. When examining only white respondents, the variation in the dependent variable, racial attitudes, that could be explained by the independent variable, race conceptualization, almost doubled.

Testing of the second hypothesis revealed a significant relationship between educational level and race conceptualization, that was consistent with expectations. Students who were further along in their studies and thus had completed more coursework, such as seniors and juniors, held less essentialist views of race than their younger counterparts. Consequently, this suggests that education does play a role in the conceptualization of race, supporting the idea that

students entering college are likely to possess more essentialist views of race, but as they are increasingly exposed to the social construction of race and evidence for such, their conceptualization of race gradually shifts towards constructionism.

By furthering our understanding of the relationship between race conceptualization and racial attitudes, we are better equipped to develop methods for decreasing prejudicial and discriminatory attitudes. If education indeed plays a critical role in how individuals conceptualize race, as the findings suggest it may, this emphasizes the importance of educational curriculum as a means to improve awareness of systemic racism and corresponding racial issues and recognition of the role of these issues in the social status of minorities. Further, the findings support the idea that students are not developing constructionist views of race as greatly prior to post-secondary education as they have developed during; Thus, this could be indicative of a need for a change in educational curriculum at the primary and secondary levels in order to improve these social issues and race relations.

Limitations of the present research support the need for additional, future research. First are concerns related to representativeness and generalizability; The present research exclusively examined students at a small, private, liberal arts college in the Midwest. Therefore, while findings may apply to similar populations, they cannot be generalized to the greater populations of American college students or American adults. This demonstrates the necessity of further research, to not only continue examining the relationship of race conceptualization and racial attitudes, but also the impact of education on race conceptualization among additional populations.

Second are concerns related to the third hypothesis and corresponding measures. Asking students to indicate whether they had completed a course in which they discussed race and ethnic

relations was possibly an inadequate method for measuring this variable, as it is impossible to discern how students may have interpreted this question or the level and detail in which these issues were discussed in the classes they are considering in answering "yes." It would be better to ask students if they have completed specific courses relative to their institution that have been evaluated by researchers to cover the topic of race and ethnic relations to an extent consistent with expectations.

Conclusion

Based on the results of the analysis and in relation to the research questions, this study found that 1) biological essentialism is associated with negative racial attitudes in the form of decreased awareness of systemic racism and corresponding social issues and recognition of the influence of these issues on the status of racial minority groups, and 2) increased education corresponds with an increased social constructionist understanding of race. Further research could serve to clarify and increase confidence in the relationship between education and race conceptualization, which is increasingly important as we witness the current push against Critical Race Theory in primary and secondary education and widespread misunderstanding of CRT within the United States.

Appendix C: Measures

[Section 1: Race Conceptions Scale]

Directions: Below is a set of statements concerning racial categorization. Using this 5-point scale, please give your honest rating about the degree to which you personally agree or disagree with each statement. Please be as open and honest as you can; *there are no right or wrong answers*.

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

1. If a Black American family traveled around the world, people they meet would probably think of them as Black, too.
2. The physical characteristics of different racial groups haven't really changed over the course of history.
3. The same racial categories have pretty much always existed.
4. It's impossible to determine how a person will be racially categorized by examining their DNA. (**R**)*
5. It's natural to notice the racial group to which people belong.
6. I believe physical features determine someone's race.
7. Generally speaking, two people who belong to the same race will always look more similar than two people who belong to two different races.
8. How a person is defined racially depends on the social context. (**R**)
9. Children will learn how to racially identity individuals without much help from adults.
10. In 200 years, racial categories will be basically the same as they are today.
11. There is agreement, across cultures, about which racial groups people fall into.
12. The average person can easily identify someone's race.
13. Racial categories haven't always existed. (**R**)
14. It's easy to tell what race someone is by looking at them.
15. Racial groups are primarily determined by biology.

*(**R**) indicates statements that were reverse coded.

[Section 2: Racial Attitudes Scale]

Directions: Below is a set of statements concerning social issues within the US. Using this 5-point scale, please give your honest rating about the degree to which you personally agree or disagree with each statement. Please be as open and honest as you can; *there are no right or wrong answers*.

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

1. Everyone who works hard, no matter what race they are, has an equal chance to become rich.
2. Due to racial discrimination, programs such as affirmative action are necessary to help create equality. (**R**)
3. Racism may have been a problem in the past, but it is not an important problem today.
4. Racial problems in the U.S. are rare, isolated situations.
5. White people in the U.S. have certain advantages because of the color of their skin. (**R**)
6. Racial and ethnic minorities in the U.S. have certain advantages because of the color of their skin.
7. Social policies, such as affirmative action, discriminate unfairly against White people.
8. Racial and ethnic minorities do not have the same opportunities as White people do in the U.S. (**R**)
9. Talking about racial issues cause unnecessary tension.
10. White people in the U.S. are discriminated against because of the color of their skin.
11. It is important for public schools to teach about the history and contributions of racial and ethnic minorities. (**R**)
12. Immigrants should try to fit into the culture and adopt the values of the U.S.
13. Members of racial minorities are too dependent on government help for getting ahead.
14. Many groups of Americans overcame discrimination and made it on their own; Minority groups today should do the same.
15. If minority members (i.e. Black people or Hispanics) don't do well in life, they only have themselves to blame.

*(**R**) indicates statements that were reverse coded.

ENDNOTES

[1] Toby Epstein Jayaratne, Oscar Ybarra, Jane P. Sheldon, Tony N. Brown, Merle Feldbaum, Carla Pfeffer, and Elizabeth M. Petty, "White Americans Genetic Lay Theories of Race Differences and Sexual Orientation: Their Relationship with Prejudice toward Black people, and Gay Men and Lesbians." *Group Processes & Intergroup Relations* vol. 9, no.1 (January 2006):77–94; & Melissa J. Williams and Jennifer L. Eberhardt, "Biological Conceptions of Race and the Motivation to Cross Racial Boundaries." *Journal of Personality and Social Psychology* vol. 94, no.6 (June 2008):1033-47.

[2] Jayaratne, Ybarra, Sheldon, Brown, Feldbaum, Pfeffer, & Petty; Williams & Eberhardt.; & Audrey Smedley and Brian D. Smedley, "Race as biology is fiction, racism as a social problem is real: Anthropological and historical perspectives on the social construction of race." American Psychologist vol. 60 no. 1 (January 2005):16–26.

[3] Jayaratne, Ybarra, Sheldon, Brown, Feldbaum, Pfeffer, & Petty; Jennifer L. Pierce, "Why teaching about race as a social construct still matters." *Sociological Forum* vol. 29, no. 1 (March 2014):259-264; Smedley & Smedley.

[4] Smedley & Smedley.

[5] Bastian, Brock, and Nick Haslam, "Psychological Essentialism and Stereotype Endorsement." Journal of Experimental Social Psychology, 42, 228–235; Celeste M. Condit, Roxanne Parrott, Benjamin R. Bates, and JL Bevan, "Exploration of the Impact of Messages about Genes and Race on Lay Attitudes." *Clinical Genetics* vol. 66, no. 5 (November 2004); Johannes Keller, "In Genes We Trust: The Biological Component of Psychological Essentialism and Its Relationship to Mechanisms of Motivated Social Cognition." *Journal of Personality and Social Psychology* vol. 88, no.4 (April 2005):686-702; Jayaratne, Ybarra, Sheldon, Brown, Feldbaum, Pfeffer, & Petty; Deborah Prentice and Dale Miller, "Psychological Essentialism of Human Categories." *Current Directions in Psychological Science* vol. 16 no. 4 (August 2007):202-206; & Williams & Eberhardt.

[6] Smedley & Smedley.

[7] Martin N. Marger, "*Race and Ethnic Relations: American and Global Perspectives* (Belmot, CA: Cengage Learning, 2009), 8.

[8] Robin DiAngelo, "Chapter 6: What is race?" in *What Does it Mean to be White? Developing White Racial Literacy*, ed. Robin DiAngelo (New York: Peter Lang, 2012); Smedley & Smedley.

[9] Eleanor Townsley, "The social construction of social facts," *Teaching Sociology* vol. 35, no. 3 (July 2007):223-38.

[10] Morris W. Foster and Richard R. Sharp, "Race, ethnicity, and genomics: Social classifications as proxies of biological heterogeneity," *Genome Research* vol. 12, no. 6 (June 2002):844-850.

[11] Christopher W. Kuzawa and Elizabeth Sweet. "Epigenetics and the embodiment of race: Developmental origins of US racial disparities in cardiovascular health." American Journal of Human Biology vol. 21, no.1 (February 2009):2–15, 3.

[12] Clarence C. Gravlee, "How Race Becomes Biology: Embodiment of Social Inequality." *American Journal of Physical Anthropology* vol 139, no. 1 (February 2009):47-57.

[13] Jayaratne, Ybarra, Sheldon, Brown, Feldbaum, Pfeffer, & Petty.

[14] Foster & Sharp.

[15] Jayaratne, Ybarra, Sheldon, Brown, Feldbaum, Pfeffer, & Petty; & Condit, Parrott, Bates, & Bevan.

[16] Katya Gibel Movorach, "Race, racism, and academic complicity," *American Ethnologist* vol. 34, no. 2 (May 2007):238-241.
[17] Pierce.
[18] Jonathon Lightfoot, "Classroom "race" talk," *Race, Gender, & Class* vol. 17, no. 1 (2010):148-153.
[19] Lightfoot.
[20] Condit, Parrott, Bates, & Bevan.
[21] Keller.
[22] Jayaratne, Ybarra, Sheldon, Brown, Feldbaum, Pfeffer, & Petty.
[23] Williams & Eberhardt.
[24] Ibid.
[25] Ibid.
[26] Helen A. Neville, Roderick L. Lilly, Georgia Duran, Richard M. Lee, and Lavonne Browne, "Construction and Initial Validation of the Color-Blind Racial Attitudes Scale (CoBRAS)." Journal of Counseling Psychology vol. 47, no. 1 (January 2000):59–70.
[27] Jayaratne, Ybarra, Sheldon, Brown, Feldbaum, Pfeffer, & Petty.