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Utilizing Autosomal DNA Testing to Identify Common Ancestry to Promote Inclusion Instead of Division on College Campuses

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ABSTRACT
This Notes in Brief contribution explores the use of autosomal DNA to engage college faculty and staff in a different approach to diversity and inclusion discussions, including antisemitism, on campuses. The author provides results from DNA testing and how he has used his results to discuss his common ancestry with students to build bridges as a former chair of the Diversity and Inclusion Council on his campus.

Introduction

In 2013, former VCCS Chancellor Glenn DuBois presented a speech titled "Diversity and Student Success" at the Nevada System of Higher Education Diversity Summit in Reno. He shared his experiences and his dreams to create a diverse and inclusive community college system. His words were inspiring. When I read them in 2019, I was motivated and accepted an opportunity to serve as the chair of the Diversity and Inclusion Council at Patrick and Henry Community College. I was also eager to be trained as a Diversity Search Advocate and joined several additional projects related to creating an inclusive environment on campus for everyone.

Since his speech, college faculty and staff have been working diligently to fulfill the requirements of the various Strategic Plans, including *Opportunity 2027*, and goals outlined during Dr. DuBois's tenure. While serving as chair, I have been included in many conversations discussing the necessity of our work and the outcomes of these programs. Our colleges are still struggling to bring everyone together as a unified community.

Hall (2023) expressed concerns about the perception of antisemitism in classrooms across the nation. Even though she did not specifically mention the VCCS, I have personally attended a diversity training session within the system that promoted inaccurate and negative antisemitic stereotypes.

In her discussion regarding antisemitism, Hall (2023) mentioned the recommendations by The Anti-Defamation League and the United States Holocaust Memorial Museum to increase Holocaust educational programs in our classrooms to reduce antisemitic attacks on campuses. Since the desired reductions in these behaviors and beliefs have not been achieved, "this could mean the message of Holocaust education is not reaching far enough, or it could mean that education itself is backfiring" (p. 7).

The unintentional consequences experienced with these workshops and training sessions appear to not only be evident in discussions regarding Jews and the Holocaust, but also regarding race and other perceived categorical differences. Our country's history provides ample evidence of groups fighting each

other through elections and civil rights movements that continue today. Recently, however, these confrontations have escalated to the point of even questioning the birth of the nation.

In 2019, Nikole Hannah-Jones coordinated with the *New York Times* and *New York Times Magazine* to develop *The 1619 Project* as a means "to reframe our understanding of U.S. history by considering 1619 as our country's origin point" (2021, p. xxii). In response to questioning July 4, 1776, as the birth of the nation, The President's Advisory 1776 Commission produced *The 1776 Report* (2021) declaring that the United States of America "has a definite birthday: July 4th, 1776" (p. 2).

These polar political positions were referenced in Dr. DuBois's speech eight years prior to these projects. In his speech, he discussed historical events in Virginia that focused on the "us and them" framework (2013, p. 1). Currently, the focus of our discussions regarding diversity, equity, and inclusion still create an "us versus them" approach, and I believe we need a new approach.

Transitioning from "You and Me" to "We"

During my tenure as the chair of the Diversity and Inclusion Council, I received an unexpected gift to trace my autosomal DNA. Unlike other DNA results that attempt to provide percentages of races or ethnicities using algorithms, this forensic autosomal DNA test creates a DNA profile and uses Combined DNA Index System (CODIS) markers as is commonly observed in shows related to FBI or criminal investigations (FBI, 2005; Yates, 2024). This profile is then compared to living populations that have been collected throughout the world. Currently, there are over 550 populations in the database being used for comparison.

To facilitate discussion, let's participate in an exercise. In Figure 1, I have provided three DNA profiles that include age and state of birth for each participant. The data have been obtained for each participant from their *DNA Fingerprint Plus* test that was designed by DNA Consultants. By clicking on the hyperlink, one is able to see a complete sample *DNA Fingerprint Plus* test that explains all the components of the test. Each test shows the top 50 DNA world profile matches. Keep in mind, these are actual living populations to whom you are related based on the CODIS markers obtained for the DNA test.
While these do not show percentages, the top matches show the strongest and most recent matches to the participant's profile. Everyone will have at least 50 matches of the 550 currently available in the database. For our discussion, I have included the top 30. When looking at the profiles in Figure 1, the populations listed for #1-#10 matches would be the strongest for each participant. A match of #30, would not be as strong or recent, but is still part of one's ancestry.

In this activity, we are evaluating our perceptions of one's phenotype, what someone looks like, with ancestral backgrounds. For Participant B, #1 is Iberian Peninsula-Andalucian (n=36) and would be the

strongest match. If one is not familiar with this or other matching populations, click on all populations to access a description of the sample populations and the source of the DNA collection. The number of participants in the sample are indicated by an *n* number. For example, n=76 indicates that 76 participants were included in that sample.

When looking at the profiles, it is also important to take note that White or Black labels indicate how the participants self-identified during the DNA collection process. DNA Consultants did not collect and create all these populations, but are using these samples for comparisons and it is important that they retain the original labels for scientific integrity.

Our task is to evaluate the 30 population matches for each of the three DNA profiles and to place each into one of three classifications based on internal biases of perceived phenotype: Black, Brown, and White. Even though these categories might be perceived as controversial, they have been selected in order to challenge our internal biases and to also acknowledge how skin color is still being used to classify one's race and ethnicity (Finkeldey & Demuth, 2021).

	Participant A (Age 74-West Virginia)	Participant B (Age 82-Alabama)	Participant C (Age 74-Illinois)
1	Belgian-Flemish (n=231)	Iberian Peninsula-Andalusian (n=36)	India-Mahadev Koli (n=65)
2	New Zealand East Polynesian (n=20752)	Spanish Moroccan Arabs (n=47)	Madagascar (n=67)
3	South African-European-Capetown (n=98)	Lithuania-Vilnius (n=140)	India-Sakaldwipi Brahmin (n=65)
4	Native American-Michigan (n=29)	Belgian (n=198)	Namibia-Windohoek (n=195)
5	Madagascar (n=67)	Serbian-Serbia/Vojvodina/Montenegro (n=100)	Guinea-Bissau (n=100)
6	White-Canadian (n=293)	Portuguese-Northern (n=286)	Black-US (n=105)
7	White-Marion County, Indiana (n=170)	Russia-Novgorod (n=59)	India-Tanjore Kallar (n=101)
8	Brazilian-White (n=100)	South African-European-Capetown (n=98)	Black-Kentucky (n=357)
9	White-Alabama (n=75)	White-US (n=172)	Russia-Saratov (n=52)
10	Belgian (n=100)	Polish (n=136)	Black-Minnesota (n=75)
11	Russia-Oryol (n=72)	Portuguese-White (n=146)	Black-Minnesota (n=157)
12	Malta (n=157)	White-Swiss (n=206)	Black-Texas (n=151)
13	Belgian (n=198)	Belgian-Flemish (n=231)	Black-US (n=139)
14	Portuguese-Madeira (n=100)	Portuguese-Northern (n=427)	Algerian Mozabites (n=88)
15	Brazilian-Belem Amazonians (n=325)	Algerian Mozabites (n=88)	Equatorial Guinea (n=134)
16	Black-Illinois (n=78)	Moroccan Arabs (n=80)	India-Kanyakubja Brahmin (n=78)
17	Black-US (n=200)	Portuguese-Central (n=114)	Black-US (n=139)
18	Hispanic-US (n=140)	White-Connecticut (n=179)	India-Northeastern-Bihar-Bhumihar Brahmin (n=65)
19	Portuguese-Azores (n=100)	White-Maine (n=151)	Equatorial Guinea (n=129)
20	White-US (n=172)	Portuguese-Northern (n=427)	Black-New York (n=75)
21	Arabs (Palestinian & Related) (m=100)	Spanish-Extremadura (n=143)	Black-Illinois (n=78)
22	Arab-Damascus, Syria (n=100)	White-Marion County, Indiana (n=170)	Singapore-Malaysian (n=197)
23	White-US (n=102)	Austrian-Salzberg Region (n=194)	Angolian (n=102)
24	Native American-Lumbee (n=106)	White-Kentucky (n=349)	Libyan (n=103)
25	Costa Rican (n=260)	Serbian (n=200)	Black-US (n=3,927)
26	Russia-Altai-Kizhi Turkic (n=80)	Belgian (n=100)	Black-Virginia (n=100)
27	Black-Kentucky (n=357)	Croatian (n=200)	New Zealand East Polyneasian (n=20752)
28	Portuguese-Northern (n=200)	White-Virginia (n=99)	Egyptian Berbers-Siwa (n=98)
29	Egyptian Berbers-Siwa (n=98)	Croation (n=106)	Spanish-Majorcan (n=103)
30	Brazilian-Bahia (n=150)	Native American-Lumbee (n=106)	India-Balmiki (n=62)

Figure 1. Top 30 DNA population matches for Participants A, B, and C.

Let's take a mental note of the category in which we placed Participant A, Participant B, and Participant C. For this activity, we are focusing on one category of Black, Brown, or White. After we have

placed the participants in the category, let's look at the profiles again. This time, let's look for any similarities among these participants according to the matching populations for each. As we review these profiles, we can ask several questions: Are there any recurring populations? Are there any populations that two or three participants share? Do these profiles fit our current understanding of Americans who have been here since the Civil War?

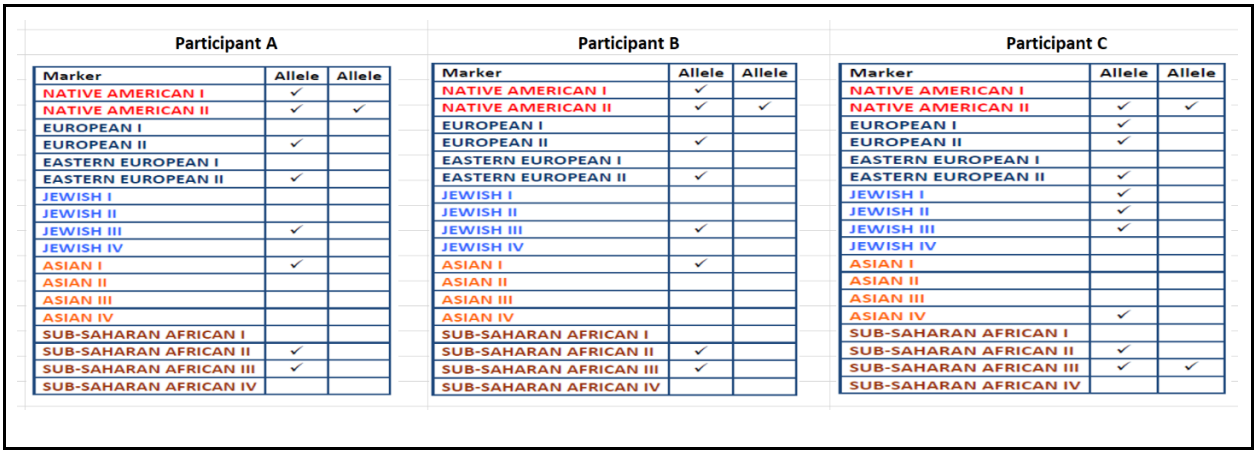
All three of these unrelated participants self-identify and are considered White by our current racial classification system. Each participant knew that they had some Native American ancestry, but believed their ancestors primarily originated from the British Isles and then mixed with Native Americans as is being taught in our history classes.

Since 2021, I have tested a total of 19 different individuals representing 14 unrelated families. These participants were born in Alabama, Florida, Indiana, Illinois, Maryland, Oklahoma, South Carolina, Virginia, West Virginia, and the country of Colombia. Of these 19 participants, three are considered minorities. Two self-identified as Black and one was a Colombian who immigrated to the United States as an adult. All 19 participants showed similar results to the three profiles provided in Figure 1, implying several points of potential historical relationships with each other. As an additional note, the participant from Colombia matched #4 White-Alabama (n=75).

In addition to which populations the three White participants matched, it is also interesting to note what is missing. All three participants are lacking a British match. Only three participants from my research have matched British. Of the 19 participants, one matched #48 White-British (n=2200), one matched #16 British (n=352), and the Colombian participant matched #17 British (n=352). Other than the Colombian participant, the other two participants are White-presenting. It is important to note that a #16 British match is surprisingly low for a person who believes he or she is of British descent.

As we reflect on these results, I want to return to Hall (2023) and her concern regarding antisemitic discussions and activities on college campuses. All 19 participants are also matching Jewish populations within their top 50 matches or have Jewish alleles. Of these participants, only one, my husband who is a descendant of a Holocaust survivor, had knowledge of Jewish ancestry. All others had no idea of Jewish ancestry or heritage.

In Figure 2, I am showing each participants' allele panel provided on their DNA report. We receive one allele from each parent. If both boxes are checked, then both parents passed down the allele. If only one box is checked, then we are not sure if it was received from the mother or father. It is also important to note that one sibling can receive an allele while another does not. The absence of an allele does not preclude the ancestry, but having it proves ancestry for the specified genetic marker. Explanations for these allele markers and how each has been subdivided can be found on the sample *DNA Fingerprint Plus* test profile that was mentioned above and downloadable from the website.



Participant A

Marker	Allele	Allele
NATIVE AMERICAN I	✓	
NATIVE AMERICAN II	✓	✓
EUROPEAN I		
EUROPEAN II	✓	
EASTERN EUROPEAN I		
EASTERN EUROPEAN II	✓	
JEWISH I		
JEWISH II		
JEWISH III	✓	
JEWISH IV		
ASIAN I	✓	
ASIAN II		
ASIAN III		
ASIAN IV		
SUB-SAHARAN AFRICAN I		
SUB-SAHARAN AFRICAN II	✓	
SUB-SAHARAN AFRICAN III	✓	
SUB-SAHARAN AFRICAN IV		

Participant B

Marker	Allele	Allele
NATIVE AMERICAN I	✓	
NATIVE AMERICAN II	✓	✓
EUROPEAN I		
EUROPEAN II	✓	
EASTERN EUROPEAN I		
EASTERN EUROPEAN II	✓	
JEWISH I		
JEWISH II		
JEWISH III	✓	
JEWISH IV		
ASIAN I	✓	
ASIAN II		
ASIAN III		
ASIAN IV		
SUB-SAHARAN AFRICAN I		
SUB-SAHARAN AFRICAN II	✓	
SUB-SAHARAN AFRICAN III	✓	
SUB-SAHARAN AFRICAN IV		

Participant C

Marker	Allele	Allele
NATIVE AMERICAN I		
NATIVE AMERICAN II	✓	✓
EUROPEAN I	✓	
EUROPEAN II	✓	
EASTERN EUROPEAN I		
EASTERN EUROPEAN II	✓	
JEWISH I	✓	
JEWISH II	✓	
JEWISH III	✓	
JEWISH IV		
ASIAN I		
ASIAN II		
ASIAN III		
ASIAN IV	✓	
SUB-SAHARAN AFRICAN I		
SUB-SAHARAN AFRICAN II	✓	
SUB-SAHARAN AFRICAN III	✓	✓
SUB-SAHARAN AFRICAN IV		

Figure 2. Allele Marker profile for Participant A, Participant B, and Participant C obtained from *DNA Fingerprint Plus* profiles.

These profiles provide information from all our ancestors and have initiated discussion with every participant. Not only were we surprised by the results, but we were required to dig deeper into the global historical migrations to try and piece together a combination of world populations in the Americas that challenges the current understanding of our history. How could this be true?

Now, let's think about what we know about all our ancestors. What did they look like? What color were they? What languages did they speak? What religions did they practice? What documentation have we read? How do we know those documents were accurate? In Figure 3, we have another image to assist in our discussion. If we go back five generations to the time of our 3rd great grandparents, or roughly during the time of the Civil War, without any crossing over in familial lines, we would have at least 32 ancestors in that generation alone (purple at top of diagram).

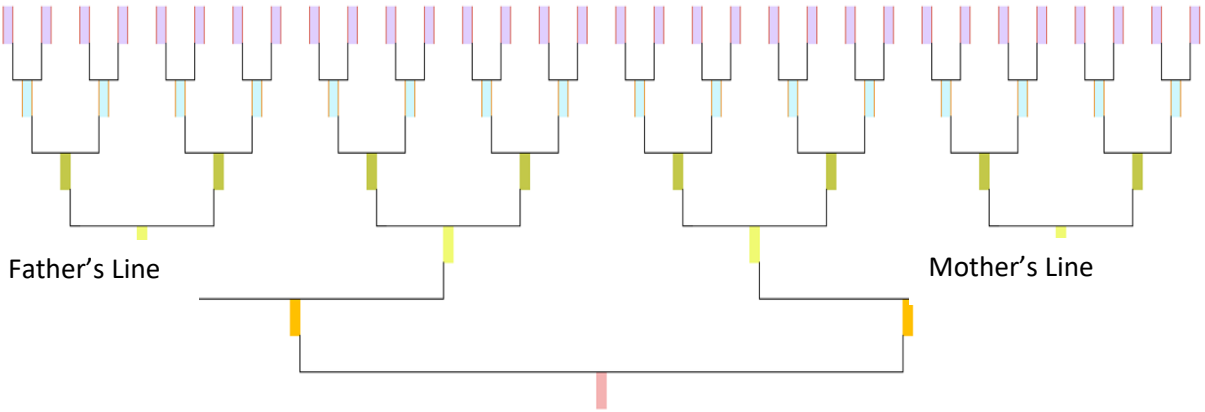


Figure 3. Ancestors going back five generations to our 3rd great grandparents. This visual shows family lines without any familial crossing over.

When we look at our father's line (Y chromosome), then we are following only the males on the outside left of the diagram. When we look at the mother's line (mitochondrial DNA), then we are following only the females on the outside right of the diagram. This would mean that of 32 ancestors in that fifth generation alone, we are focusing on only 2, our 3rd great grandfather on the left side and our 3rd great grandmother on the right side. Traditionally, genealogical memories tend to focus on male lines, those that follow the surname, but who we are today is the result of all our ancestors.

Personally, I have met my maternal grandmother and great-grandmother. On my father's side, I have only met his parents. When I obtained my autosomal DNA, I was able to "meet" for the first time all my ancestors whom I had not met and who would have been lost forever. Figure 4 shows the pictures of all three participants. The participants discussed in the above profiles are all females.

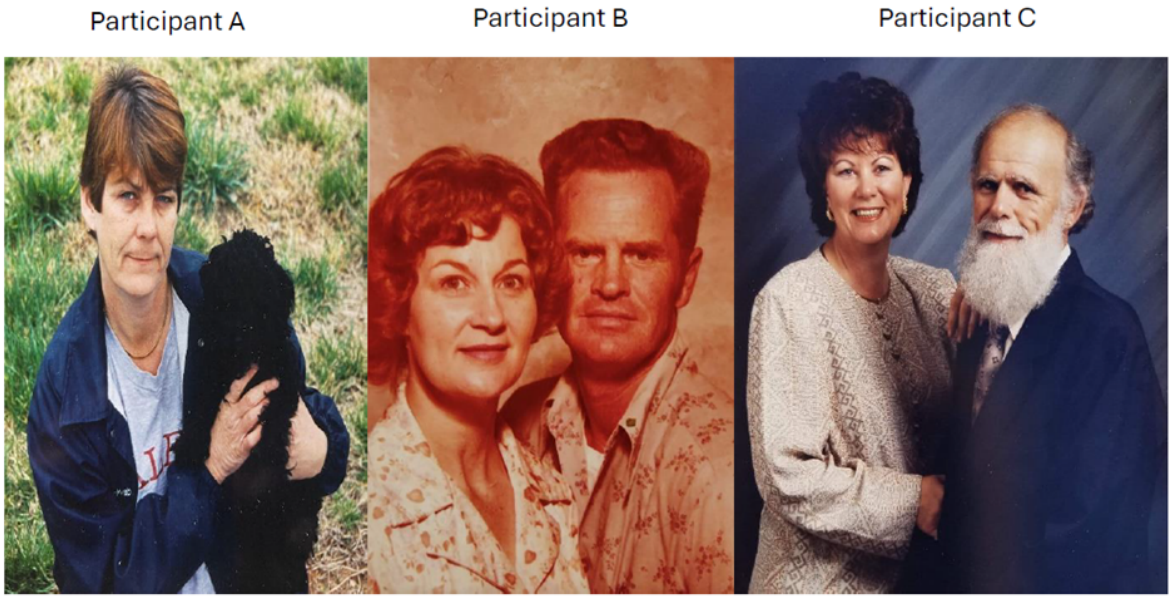


Figure 4. Photographs of all participants. Participant A is my biological mother. Participant B is my research partner's biological mother. Participant C is my step-mother and biological father.

A Different Approach for the Future

In the above activities, we examined three DNA profiles to evaluate and to make ourselves aware of our perceptions of three racial classifications: Black, Brown, and White. Because my last name was Shrewsbury, I grew up believing we came from Shrewsbury, England, and then mixed with Cherokee as English colonists. I was shocked when my DNA matches told a different story. As I continued to collect DNA samples and discuss the results with participants, my biases of the ancestral lines of Black, Brown, and White Americans were challenged and then ultimately changed.

During multiple implicit bias training workshops over the years, we as participants were instructed to complete computer-based assessments to evaluate our implicit biases. Many of our discussions were still based on *us versus them* and focused on methods to improve any negative implicit biases involving the "other." After receiving my autosomal DNA results, however, my perception of everyone, including myself, has changed. Instead of focusing on our differences, I have started wondering how our ancestral lines might be related.

Thanks to what I have learned over the past three years, I have officially converted to Judaism and legally changed my name to represent my Sephardic Jewish and Native American ancestry. While chair of the Diversity and Inclusion Council, I shared my results with my students. When I was able to show that I

matched Hispanic, Jewish, and African populations, I became more of a stakeholder in diversity and inclusion to myself and hopefully to my students.

Instead of speaking with my Hispanic students as a White-British descendant who learned Spanish, now I join them as a fellow Hispanic with my own unique story as a Heritage learner from the position of a descendant of expelled Spanish Jews. I am still not sure of the reason why every autosomal DNA profile that I have obtained shows the same results: little-to-no British or Western European, but rather Jewish, Native American, Northern and Sub-Saharan African alleles. The current accepted origin stories do not answer these questions, but the journey to understand has changed my life.

Instead of continuing the current practice of mandatory diversity, equity, and inclusion training, what if we were to take a different approach? What if volunteers on our campuses obtained their autosomal DNA results and then discussed them with their campuses? What if we focus on our similarities through autosomal DNA results instead of focusing on our differences?

Even though I was not able to secure funds at my college to provide volunteer testing to encourage dialogue to build bridges uniting people of various races and ancestral backgrounds, it is my hope that others will research their autosomal DNA and look for inclusive ancestral matches. I can envision professors of science, history, and psychology collaborating to discuss the results of our DNA matches and the discrepancies between our DNA and what shows on our faces alone.

When we see possible historical connections instead of "you versus me," it is easier to sit down at the family table and start another discussion. As an extended family, we can utilize science to overcome some inaccurate perceptions based on our appearances. When we realize that we are common stakeholders in our ancestors' dreams and sufferings, then maybe we can take a different approach to building bridges that will help us all.

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