

10-2014

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UNIVERSIDAD NACIONAL

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WEST CHESTER UNIVERSITY

PENNSYLVANIA, USA

MEMORIA ELECTRÓNICA

III CONGRESO INTERNACIONAL DE EDUCACIÓN SUPERIOR

6-10 de octubre de 2014

Heredia, Costa Rica



Questioning Race:

Ancestry DNA and dialogue on race

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Abstract

Human genetics and racial identity converge pointedly in the family narrative. Until recently, genetics, racial identity, and family narrative were all rather malleable concepts in the public arena. All were presented in anecdotal form for the most part, and were often based on certain social conventions. The interjection of popularly available ancestry DNA data adds an additional piece of information to the discussion of genetics, race and narrative. Using the framework of both narrative theory and theory of social construction, this work uses quantitative and qualitative data to explore how individuals react to ancestry DNA findings and to consider if and how this information will change narratives, behaviors, and perspectives. We also explore if one's racial identification makes a difference in initial accuracy and if there is a difference among racial groupings in terms of change in census identification based on knowledge of their DNA profile.

Key Terms: Ancestry DNA, Racial Identity

Human genetics and racial identity converge pointedly in the family narrative. Until recently, genetics, racial identity, and family narrative were all rather malleable concepts in the public arena. All were presented in anecdotal form for the most part, and all were subject to certain social conventions. For instance, a genetic narrative was generally expected to explain a family tie, hence the secrecy that once surrounded adoption. In terms of racial identity, every US citizen was expected to affirm one racial category (requested on the US Census) based on his or her personal declaration as well as variable local laws and standards. As a result, some people who were socially accepted to be “colored” in one community, could move to another community and “pass” for white, given a convincing story. And genetic ancestry was often a matter of family lore (Stone, 1988) passed down from one generation to another and believed or disbelieved based on accepted social truths. For example, consider the controversy about the black offspring of President Thomas Jefferson, with some communities assuming the truth of the “rumor” and others rejecting it out of hand (Leary, 2001). Of course, there have always been many notions of family articulated in family narratives, based on social, political, legal, structural, or functional links (Fitzpatrick & Caughlin, 2002; Galvin, Bylund, & Brommel, 2003; LePoire, 2006; Segrin & Jeanne Flora, 2005); as well as various standards for racial identity and family stories (Author, 2012). But in all cases, a narrative wove together the facts, and the resiliency of the narrative was based on its sustainability when subjected to the standards of narrative proof, specifically, what Fisher (1987) calls coherence and fidelity. Part of that proof required that the three stories be in sync. However, narratives

may come in conflict with each other. Thus, how might DNA information that conflicts with one's accepted narrative impact one's self-identification? And how might a shift in family narrative have far reaching implications for the way that society constructs race? This study looks at how people view their racial identities and how new information (based on ancestry DNA data) that might conflict with their personal narrative may affect these narratives.

Theoretical framework

Genetic, racial and family narratives all had to incorporate what Fisher (1987) describes as a combination of what we presently think of as logical arguments plus elements of mythos, imagination, and values. According to Fisher (1987), "human communication should be viewed as historical as well as situational, as stories or accounts competing with other stories or accounts purportedly constituted by good reasons, as rational when the stories satisfy the demands of narrative probability and narrative fidelity" (p. 58), for, as Fisher famously asserts, humans are "story telling animals" and there are elements of humanness that can be best, perhaps only, understood by exploring the narrative form. In other words, genetic, racial and family narratives carry not only "factual data" but also our hopes and dreams and "baggage." They continue to exist as long as they meet our needs and are judged by society as being both possible and resonant. Elizabeth Stone's (1989) exploration of family stories confirms the power of the family narrative to create a unique truth. She states that family stories create a vision of "blood coursing down undiluted and un annoyed..." (p. 39), and create a coherent account

likely intended to obscure or rework the past as often as reveal it, always with a subtext of instruction about the values, hopes and concerns for survival of the unit.

Fisher's (1987) concept of fidelity refers to whether a narrative represents accurate assertions about a person's specific social reality (p. 105). In other words, information that does not support a person's reality is likely to be initially rejected, regardless of how "objective" or scientific it might be. People would then be likely to take one of several approaches – reject the information outright, be upset about it, or find some way to reconcile the dissonant information (by attempting to explain how the pieces of information may somehow fit together).

Understanding the larger socially constructed racial context (Kurylo 2010, Author 2009, Lee, 1996, Reyes 2007, and Carbaugh 2005) in which family narrative exists establishes the broader setting that influences family lore and visa versa. As stated by Kurylo (2010), "a culture exists by virtue of it being produced and reproduced in the moments of communication" (p. 16). From this perspective, family narrative becomes a micro enforcer of a centuries-long but illusive racial hierarchy. The family narrative is the story of racial America told around the kitchen table, but now, suddenly, unexpectedly challenged at its very core, DNA.

The work of Hirshcman & Panther-Yates (2008) in their preliminary examination of reactions to ancestry DNA testing is helpful as we begin to explore the implications.

DNA and Narratives

The recent unlocking of the human genome (U.S. Department of Energy Office of Science, 2009) and the increasingly popular use of ancestry DNA tests that this mapping

has made possible, now interjects a new kind of information into the conversation about genetics, race and family (Hirschman & Panther-Yates, 2008). This new information is based on a different set of rules, and complicates long standing family narratives for two reasons. First, data is available today that never could have been imagined when decisions were made in the past. Any misrepresentation at any point in the past regarding genetic relationship can send a narrative spinning off into unexpected and unexplainable directions. Unexpected information can be very disconcerting for a person who has settled on a particular narrative. Second, there is not always a genetic equivalent between socially constructed perceptions of race and genetic groupings. For example, a person can identify as a particular race or ethnicity, have a phenotype and family story consistent with that identity, but have a genetic marker associated with another group either from a past ancestor or simply by chance. Having even a single ancestor in the distant past from which one inherited a marker is not the same as what we associate today with the idea of race. And having a chance similarity is not related to the idea at all. These factors can cause confusion as we attempt to rectify the meaning of family and race with new genetic data.

Exploration by scholars of family communication in the context of genetic counseling can be informative on these points. Genetics counselors constantly have to address the relationship between genetic data and creating an appropriate family health narrative for at least two reasons (Gaff & Bylund, 2010). First, since genetic information is interpreted by humans and since genes are not destiny, having an identified genetic marker for a disease does not guarantee when or if a person will develop a genetic

condition, which means that the recipient has to live with a great deal of ambiguity. Second, results of a test for one individual have implications for the entire family. So, a person faced with new DNA health data has to make a decision about the wisdom of sharing the information as well as how to internalize it. According to Koerner, LeRoy, & Veatch (2010), depending on the family style, this information can be interpreted in different ways. Families may think in terms of genetic absolutes (I am going to get this disease and die) or possibility (I have a higher risk) or complete dismissal (What do they really know?). In each case the information may be viewed as a burden, neutral, or a gift. So sometimes genetic information creates as many questions as it answers. Genetics counselors are currently turning to the Reciprocal Engagement Model (REM) in counseling, even referencing the work of Berger and Luckmann (1966) on social construction of reality, also referenced in the work of Foeman on ancestry DNA (Author, 2009). The five tenants of REM place genetic information in the context of a larger relationship and guide the genetic counselor to 1) share genetic information with clients, 2) create an open and honest relationship in counseling, 3) respect the autonomy of the recipient of the information, 4) assume the resiliency of the recipient, and 5) assume that emotions matter (Veatch, Bartels, & LeRoy, 2007).

In a society with the racial history of the USA, some of the same factors (albeit to a lesser degree) may be relevant when talking about the genetics of race. Living with ambiguity, determining how to share information, and determining how much of the information will be accepted are themes that ancestry DNA testing presents.

The impact over time may be profound and Hirschman & Panther-Yates suggest that 'we may be witnessing a potential transformation in the way that race and ethnicity are conceived and acted on in the popular consciousness.' (p.64). Because scholars in communication are in the best positions to explore both the narrative and the social construction of race, and are often skilled in counseling and facilitation, our place is at the center in unpacking this new conversation of great consequence.

In 2009 the author began a program of research intended to explore the impact of new ancestry DNA data on racial and family narratives. Over the course of the next five years (Author, 2009, 2009, 2010, 2013, in press) more than 300 individuals were tested using a basic approach: 1) pre-interview individuals about their known family/racial background, 2) ancestry DNA test them, 3) share the DNA findings with participants, and 4) post-interview them to determine how they integrate the new information. DNA results were reported as percentages of various geographic regions such as Africa, Europe, and Asia. Further, the broad categories were subdivided to indicate more specific areas within a region, for example Central East Africa or North Coastal West Africa.

It is important to note that there are a few different labs that run DNA tests. Each of these labs run their own proprietary test; thus, there may be slight variations in results from one lab to another. This project used one lab for consistency of results. Moreover, ancestry DNA protocols are designed and "read" by people. These genetic scientists determine which markers are most ancestry informative as well as how many links constitute an "adequate" match (one data point, or combination of DNA points, for example)(DNA Reference Lab, 2012; Shriver & Kittles, 2004). Error rates are also important

to acknowledge, and project leaders tell participants that any ethnicity under 10% should be received cautiously.

In her summary, Author (2009) presents seven preliminary findings growing out of the review of narrative and social construction theory worthy of further exploration based on qualitative research: 1) viewing ancestry DNA creates an opening for a new cultural narrative of race that may reflect an evolving American identity, 2) African Americans' narratives more fully reflect the diversity of their ancestry DNA versus their white counterparts, 3) white Americans have little awareness of the ancestry diversity in their backgrounds, 4) romantic Native American narratives have little support in ancestry DNA profiles, 5) identification as Latino is based more on culture than race or ancestry DNA, 6) few narratives exist to explain the occurrence of Asian ancestry, and, finally, 7) unexpected information is likely to be revealed during the process of discovery.

All of the research to date has consisted of qualitative analysis. This work uses a quantitative and qualitative approach to expand the basis on which conclusions are reached about the relationship among racial narratives, social construction and new genetic information.

This review (the first in a series) attempts to flesh out how racial groupings may differ from each other in terms of identification and how their narratives may change in response to DNA knowledge. It also looks at how individuals tend to respond to knowledge of their DNA profile. The research questions were developed based on several criteria. First, these questions were intended to flesh out some of the research issues that arose from previous qualitative research done by one of the authors. This study's first five

questions address issues related to openness about developing new narratives of race on the individual level but feeding into the larger frame of race among family and friends, and eventually into the societal level. Second, census identification (RQ7) was tracked pre and post DNA testing, because it represents a widespread practical application of how people self-identify. Another question (RQ6) attempts to answer the question raised by qualitative research regarding White vs. non-White identification patterns. For instance, do they feel that society will view them differently? Do they change their census identification if their DNA profile is different from what they perceived it to be? Will they change their family narratives because of this information? All these questions may impact whether they stay with their narratives, and consequently their identification, or adjust them; all of this, of course, affected by the way society constructs race and how that filters down to the level of the individual. Specifically, this study has the following research questions:

RQ1: How did participants react to their DNA profile?

RQ2: How did others react when participants told them their DNA profile?

RQ3: Will participants tend to change their family narratives as a result of their DNA knowledge?

RQ4: Will participants tend to change any behaviors as a result of their DNA knowledge?

RQ5: Do participants feel that society will see them differently based on the DNA profile?

RQ6: Is there a difference among racial groupings in terms of initial identification, specifically, do different groups tend to specify single vs. multiple categories when asked to draw their DNA profile before the test?

RQ7: Is there a difference among racial groupings in terms of change in census identification based on knowledge of their DNA profile?

Methodology

Sample

Forty-five students (13 male, 32 female) enrolled in an intercultural communication class in a mid-Atlantic university were administered the DNA test between 2011-2012. Students' DNAs were collected using a swab test and samples were sent to an independent lab that ran their DNA profile. The results came back directly to the researcher approximately two weeks later, who then shared the results with the students. Students were asked to answer an instrument before (pretest) and after (post-test) they took the DNA test(See Appendix A). Participants were recruited purposively to try and get a range of representation among different racial and/or ethnic groupings. We acknowledge the limitations of this approach as well as its necessity. Each person signed informed consent for the project.

Variables

RQ1 asks how participants reacted to their DNA profile. The post-test instrument asked them to list three words they would use to describe their reaction. Responses were tallied and combined into 7 categories (See Table 1), which were then used by coders to code responses.

RQ2 asks how others responded when participants shared their DNA profile. Similar to RQ1, the post-test instrument asked an open-ended question regarding how

others responded to this information. Answers were tallied and combined into 5 categories for coding (See Table 2).

RQ3 asks whether participants tend to change their family narratives as a result of their DNA knowledge. The post-test instrument included an open-ended item that asked how participants might change their family narrative. Responses were tallied, then combined into five response categories (*question family history/do more research, won't change, unsure, add to family narrative, or adjust completely*).

RQ4 asks if participants might change any behaviors as a result of their DNA knowledge. This was asked on the post-test instrument as an open-ended question. Responses were combined into four categories for coding (*doing more research on background, attend more cultural events, be more accepting of other cultures, and wouldn't change actions*).

RQ5 asks whether participants felt that society might see them differently based on their DNA profile. The post-test instrument asked this question with the following response categories: *no different, unless I say something no one will notice, people will still judge based on appearance, not sure, believe judgment will change*).

RQ6 asks whether there is a difference among racial groupings in terms of initial identification, specifically, whether particular groups tend to identify single vs. multiple categories when asked to draw their DNA profile before the test. The pretest instrument asked respondents to draw their DNA circle based on how they identified themselves, using the categories of European, Latino, East Asian, and African. These categories were used to match the racial groupings used by the DNA lab. They refer more to geographical

groupings rather than true racial distinctions. For example, even if Latino is not considered a race, the lab considers it parallel to the other categories. This study therefore also makes the same assumption. A graduated circle that showed percentages was used to determine the actual percentage breakdowns of each group drawn by respondents.

RQ7 asks if there was a difference among racial grouping in terms of change in census identification based on knowledge of their DNA profile. Respondents were asked how they would identify themselves on the census before and after the DNA test. This variable lists categories from the 2010 census, and was asked in the pretest and post-test, allowing for the tracking of any changes in census identification for each respondent.

Inter-coder reliability

Two female Caucasian undergraduate students coded the variables and the DNA charts in this study. Several variables were from open-ended questions. Coders and researchers together discussed and organized verbatim answers into a codebook that listed response categories for each question, which were then used by coders to code responses. The coders went through four rounds of training on the codebook. They coded five participants' responses in each round and the inter-coder reliability was assessed using Krippendorff's Alpha for each variable. All variables received inter-coder reliability of .8 or higher.

Results

Table 1 gives an overview of the participants' reactions to their DNA profile (Research Question 1). Based on this data, the largest percentage (37%) felt surprised about their DNA profile, followed by positive reactions (24%).

Table 1. Participant response to DNA results

	% (n=45)
Surprised	37
Positive	24
Confused	20
Curious	12
Negative	4
Other	3

Research question 2 asks how others reacted when participants told them their DNA profile. Participants shared their results with other family (42%), mother only (27%), friends (27%), both parents (22%), boy/girl friend (22%), and father only (2%).

Table 2. Others' response to DNA results

	% (n=40)
Surprised	33
Curious	23
Confused	11
Positive	9
Other	25

Table 2 shows that other people were surprised by the results (33%), followed by other responses (25%) such as “retake” and “understandable.” This was then followed by curiosity (23%) and confusion (11%).

RQ3 asks whether participants tend to change their family narratives as a result of their DNA knowledge. Table 3 shows that participants were equally likely to dig deeper into their history or not change the narrative at all (29%). One-fifth would add the DNA information to their narrative, and only 9% would change the narrative completely.

Table 3. Participant propensity to adjust family narrative

	% (n=40)
Questions family history/dig deeper	29
Won't change	29
Add to family narrative	20
Adjust completely	9
Unsure	9
No response	4

RQ4 asks if participants might change any behaviors as a result of their DNA knowledge. Since participants were allowed multiple responses, the responses were weighted and the percentages for each category are shown in Table 4.

Table 4. Participant propensity to change behavior

	Weighted % (n=45)
Do more research	48
No change	31
Attend cultural events	12
Be more accepting of other cultures	4.5
No response	4.5

Almost half of participants stated they would do more research as a result of their new DNA knowledge. However, a third said they would not do anything to change. Other changes included attending cultural events (12%) and being more accepting of other cultures (4.5%).

RQ5 asks whether participants felt that society might see them differently based on their DNA profile. Table 5 shows that about half of respondents do not think society will view them differently. This was followed equally by those who believe that society will judge them based on their appearance or will change judgments (13%). Some also believed society will not notice unless they say something (12%).

Table 5. Participant belief on whether others will see them differently

	Weighted % (n=45)
No different	46
Judged based on appearance	13
Judgment will change	13
No one will notice unless I say something	12
Not sure	11
No response	5

RQ6 asks whether there is a difference among racial groupings in terms of initial identification, specifically, whether particular groups tend to identify single vs. multiple categories when asked to draw their DNA profile before the test. Because of the small numbers, non-Whites were combined. Table 6 shows that the tendency for a participant to describe his/her background as a single ethnicity versus as multiple ethnicities was different for people who were majority European/White versus those who were majority Non-European. There was a statistically significant difference between the two groups (Fisher’s Exact Test: p-value < 0.0001). Europeans/Whites picked a single ethnicity twice as often as they used multiple ethnicities whereas Non-Europeans never described themselves using a single ethnicity. This difference between the two groups was statistically significant (Fisher’s Exact Test: p-value < 0.0001).

Table 6: Initial Identification of Participants based on Majority Ethnicity and Use of Single v. Multiple Ethnicities (European v. Non-European)

	Single vs. Multiple ethnicity		Total
	Single	Multiple	
European*	24	12	36
Non-European	0	9	9

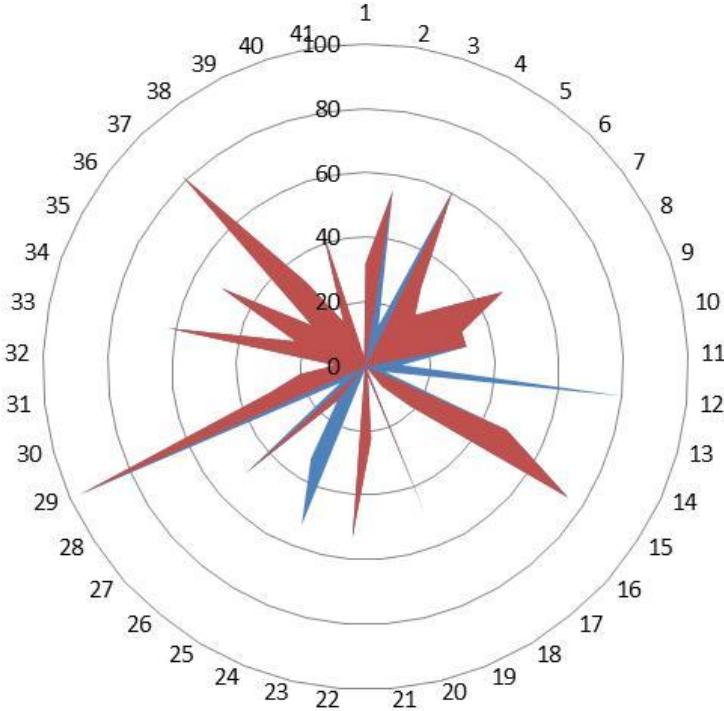
*Fisher’s Exact Test, p<.00001

Because of the finding that there were distinct differences in how participants from European vs. non-European categories initially identified, we looked at whether respondents tended to overestimate or underestimate each racial category pre-vs. post

DNA. The following four graphs show the amount of overestimation or underestimation for each racial category. These graphs show the difference in percentage of racial categories the pre-test pie chart vs. the post-test pie chart. The numbers around each circle represent individual respondents. The colors show whether they over or underestimated that category. Graph 1 shows that participants generally overestimated their European background, and Graphs 2-4 show that participants generally underestimated Latino, African, and Asian backgrounds.

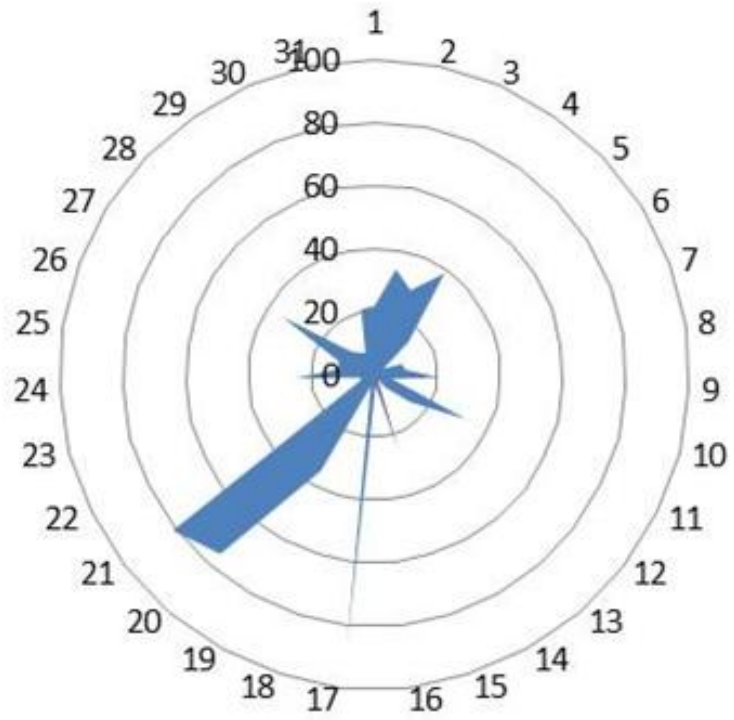
Graph 1. Difference Pre-Post for Participants: European Category

(red=overestimated, blue = underestimated)



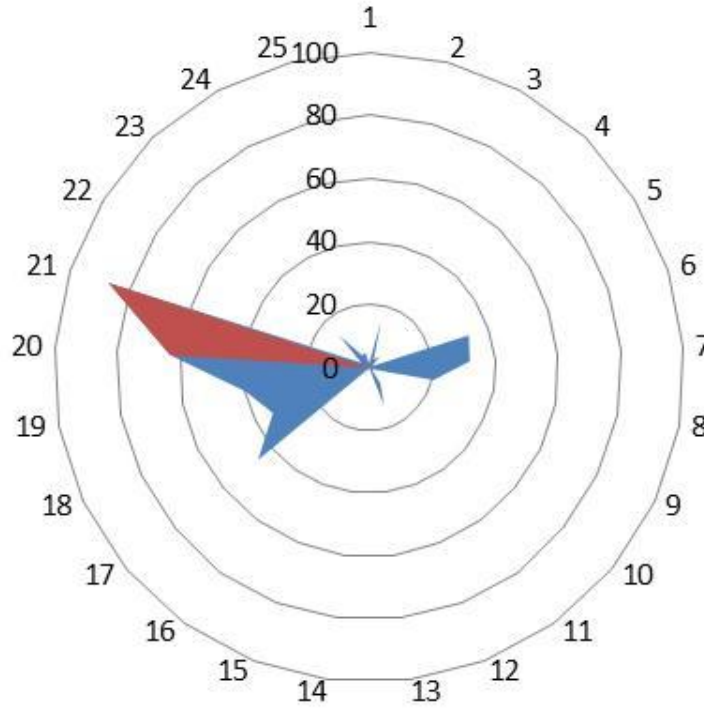
Graph 2. Difference Pre-Post for Participants: Latino Category

(red=overestimated, blue = underestimated)



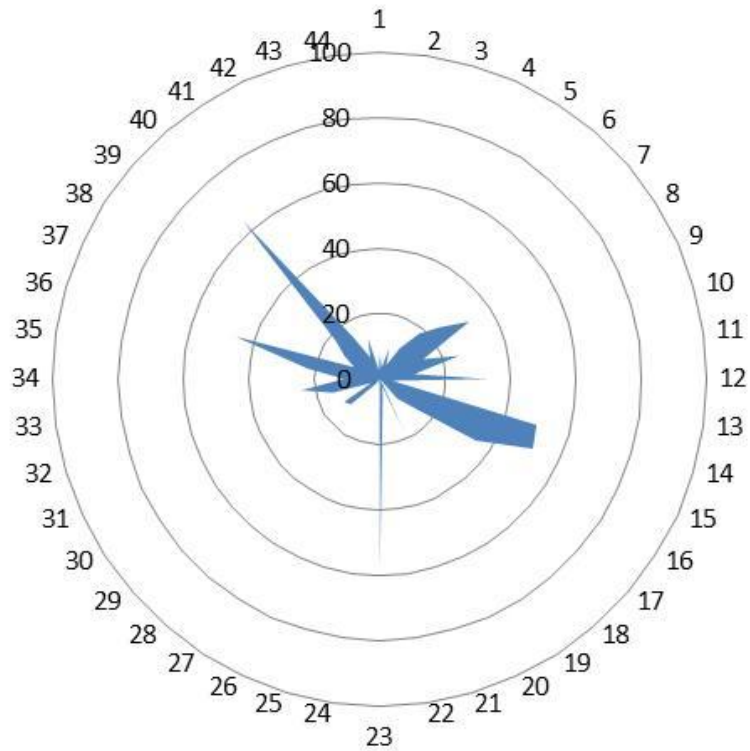
Graph 3. Difference Pre-Post for Participants: African Category

(red=overestimated, blue = underestimated)



Graph 4. Difference Pre-Post for Participants: Asian Category

(red=overestimated, blue = underestimated)



RQ7 asks if there was a difference among racial groupings in terms of change in census identification based on knowledge of their DNA profile. On both the pre-test and post-test instruments, participants were asked to identify themselves based on the U.S. Census categories for race. Participants were allowed to choose more than one answer. The sixteen census categories were consolidated into the five racial categories, (See Appendix B). As seen in Table 7, approximately two-thirds of participants did not change their census identification based on their DNA test results, i.e. their choices on the pre-test and post-test instruments were still in the same racial categories. Approximately one-third of the participants changed their census identification, based on their DNA profile, to

include an *additional* racial category. Approximately one-fifth of the European/White participants added a racial category to their census identification, and approximately two-thirds of the Non-European participants added a racial category to their census identification.

Table 7. Change in census identification by racial group

	Changed*	Unchanged	Total
African	4	1	5
Bi-racial	1	1	2
European	7	27	34
Latino	1	1	2
Total	13	30	43

* All of the changes that occurred were students adding a racial category rather than a complete re-categorization.

Discussion

Based on the results of the research questions above, we have identified some themes that generalize the findings of this study.

1. In general, participants do not change their formal census identification based on the DNA, even if the DNA profile is quite different.

Our findings suggest that participants distinguish between genetics, narrative and identity. Our participants' racial identity seems to have firmed up early in life, especially for people in the majority culture. Despite the fact that participants were intrigued and excited by unexpected results, overall, they do not seem willing to integrate a new sense of racial identity as a result of the new genetic data. Says one respondent who identifies as African-American,

It feels like somehow, somehow my results were mixed up and I received the

wrong profile. There has never been mention of Hispanic heritage in our family and yet my results display 70% Hispanic. Truthfully, I wouldn't adjust my family narrative.

They report they will share results with friends and family, as well as include the new information as part of their “story,” but few said that they would change their racial identification on the US Census form. In fact, when asked for a quote to share in a display of DNA profiles, one participant who found that her ancestry was predominantly European although she identified as a Middle Eastern woman of color, said unequivocally that “nothing can change a person’s identity, even DNA” data. Previously existing narrative proof seems to outweigh new genetic information.

RQ7 results show that despite the attitude of this woman of color, overall, Whites were stronger in holding onto a single identity and were most resistant to changing it. It is likely that people in the dominant group, consciously or unconsciously, experience little benefit in switching from White to multi-racial. For example, two respondents who identified as White said

The findings of this DNA were extremely shocking to my mother. I do not believe I would change any parts of my family narrative because I was raised with certain traditions, and I cherish the memories of learning those traditions more than I do other aspects of my ethnic background. I will continue to identify as White.

I am happy I got the DNA test but I am not taking it seriously. My family are all immigrants from Italy and traveled here for a better life, and they have achieved it. I believe my family has not hidden anything from me and we are in fact Italian. Regardless of these results, I still consider myself to have a 100% Italian background.

The social construction of White as “pure” and unadulterated, codified in “one drop laws,” seems to reveal itself at the level of the family and personal narrative. One

participant called her mother after receiving a result that she is about 25% African in her ancestry. The mother responded to the report by saying, "That's not right and you're not ours." African Americans, on the other hand, know that their ancestry is complicated because of the history of slavery and Jim Crow. Thus, African Americans have always thought of themselves as multi-racial and are both more flexible to change and may already see the term African American as encompassing a multi-racial mix. Even for other racial groupings, however, RQ 7 results show that when participants showed willingness to change their identification, this change came in the form of adding to their identification, as opposed to re-categorization. RQ 6 results also support this, showing that non-Whites tend to initially self-identify with multiple groupings compared to Whites. Identifying as African American may also be perceived as a political statement as well as a racial one. Indeed, there have been campaigns to encourage African Americans to select Black as their single racial identifier on the US Census (TJMS, 2010) for political reasons. As a result of this feeling, there may be pushback against the individual regarding re-categorizing oneself as other than African-American. One student in this research project grew up identifying as African American and wanted to be tested because a relative recently told her that she has Latina background. The student, who has a dark brown complexion, had a DNA profile that was almost 50% European. She posted her profile on Facebook. She reports that she was barraged with negative feedback, one of which commented very caustically on her parents' and her dark skin and concluded, "What, you gonna go around and tell people you're European now?" Clearly there is pressure from outside as well as internally to stick with a story that has proved coherent up to that point.

The Latino designation is not a racial identification in the same way that European, Asian, or African ancestries are associated with a specific genetic line. In fact, the US Census includes two separate questions about background. One specifically asks about Latino identity and a separate question asks about race, so a person can be any race and identify as Latino. The association of people who identify as Latino is complex and may actually provide a great deal of flexibility within the term, so participants may feel that no new designation may be required regarding how they identify on the census.

2. Participants show willingness to share DNA information and to initiate efforts to learn more about their background, opening the possibility of shifting narratives across generations.

Participants generally showed surprise or had positive attitudes toward their DNA profile. Most shared this with others, who were also surprised or curious about the results. About half of participants exhibited willingness to do more research and dig deeper into their background. One respondent who identified as White shared,

I called my mom, who was just as surprised as me by the high percentage of South Central Asian. I told my two best friends, and they did not understand how that would be possible. I ended up feeling stupid because I did not even have a good explanation for them. About two weeks later I went home for the weekend to visit my family. My aunt heard about my DNA results and denied that we were from that part of the world. Then she told me how our ancestors were from Germany, then settled in Siberia close to the Ural Mountains. I later found out that the Ural Mountains border Kazakhstan, which is considered a South Central Asian country. It suddenly made sense to me after I did more research.

It is possible that if participants of all backgrounds continue to share DNA information with their children, their kids will grow up with a different sense of self and a broader racial identity, which has major implications for the construction of race into the

future (Hirschman & Panther-Yates, 2008). The US culture is already leaning toward a more multicultural self-image with attitudes toward interracial marriage more accepting than ever (Wang, 2012) and the US Census offering the option of checking more than one race as a relatively new option. For now, our participants express that DNA data may be too far ahead of a familiar story to make much real difference in their own lives. Fisher's concepts of coherence and fidelity help explain this phenomenon as well as a construction of race centuries in the making. People are often locked into their family narratives because these have made sense to them, they work for them. One respondent explained how her Native American heritage has benefitted her family; thus, she did not welcome results showing she had very little Native American DNA.

I defined myself as being Native American. I still am, but not as much as I thought I was. I am still toying with the idea of keeping my mouth shut about the DNA test to my family. My paternal Aunt Patricia "Shining Star" is deeply steeped in Native American culture. For her to find out that Poppop Ho was basically lying would break her heart. Some of us had full rides to college because we were Native American.

When DNA conflicts with these personal stories, rendering the latter incoherent or distressing, people then tend to try and make sense of the information by "doing more research" or "attending cultural events" related to their DNA profiles. When one experiences a different culture, the process of in-group belongingness and owning of this culture may begin. One respondent knew she was biracial; however, she identified as Puerto Rican and found out she was mostly European. This is what she had to say about her narrative:

Most of my life I grew up thinking I was just Puerto Rican, failing to admit to being European because I didn't have contact with that side of my family. I didn't have a close relationship with my biological mom, who is

White. Although it is hard for me to connect with any side of myself besides Hispanic, I do love the fact that I am mixed. I do know it is something I will pass down to future generations, so they can know how diverse they are and appreciate how beautiful that is as well.

When one begins to accept diversity in one's biological make-up, it becomes more reasonable then to shift one's narrative. For example, one of the reasons adoptive parents of children from China enroll their adopted children in Chinese language schools is to help their children identify with a community from their birthplace (author, 2009). One participant in this study of Chinese descent with Native American reported in her profile was intrigued to find through further research, that Asian and Native American DNA are often indistinguishable because of the trek of Native Americans through Asia in the human migration. Such learning helps individuals to include new ancestry in their narratives.

Perhaps, the most important finding is that the presentation of new and often surprising data opens the door for a reconsideration of the common construction of race. One respondent said,

I would describe my DNA test as eye-opening. If this test was completely accurate, I am curious in learning more and seeking something like ancestry.com for more information on where my family roots lie.

Tables 3 and 4 show that about 1/3 of participants will not change any of their narrative or their behaviors even after finding out their DNA, and Table 5 shows that 75% participants believe society will not see them differently based on new DNA information. On the flipside, this means that 2/3 of participants will initiate changes in their stories and will investigate the meaning of this data, and about a quarter believe that society will change how they are viewed. As the use of these tests proliferate and people discuss the

findings and develop narratives to incorporate them, the broader sense of race could shift in its trajectory. As storytelling animals (Fisher, 1987), people will weave together a new coherent story that feeds into social construction of race. Notice how this respondent sought to explain the finding that he was part Native American through a narrative from his mom.

I have always thought I was only European. My results told me I was 15% Hispanic and I have some Native American. I found out from my mom after I told her that my great-great-grandfather was a tiny bit Native American. I had no idea whatsoever about that until this week.

Another participant who identified as Hispanic went through the same process of trying to find an explanation.

When I first received my results I was confused by the large percentage of Middle Eastern in my background, but after the shock wore off I began to think things through in order to find an explanation. I looked up the origin of my father's name. It showed that his last name originated from Israel and that his family later moved to Spain. However, many of my friends now joke, 'You're not even Hispanic, what do you know?' when discussing things of the Hispanic culture. I would have to say it has been getting annoying lately especially since I was born, raised, and lived in both the Dominican Republic and Puerto Rico. I do not let it get to me because at the end of the day I will never feel the need to 'prove my Hispanic-ness' to anyone. However, I am intrigued and have reached out to a close friend from Pakistan and my cousin-in-law from Turkey.

New awareness and a new demographic reality of the USA surely call us to revisit the racial narrative of the USA (Hirshman & Panther-Yates, 2008; Johnson, 2008; Lwin, 2008; Lopez, 1994). Strategies suggested by genetic counselors (Gaff & Bylund, 2010; Koerner, LeRoy, & Veatch 2010; Bartels, & LeRoy, 2007) can help us process some of the challenging and perhaps disorienting information we find. Parenthetically, this work encourages people to question DNA data and explore its nature and thus engages people,

especially the young and people of color, in the sciences, encouraging them to see the biological sciences as relevant to their lived experience. Without a doubt, the face of the United States is changing, as is access to ancestry DNA data, and we are only at the beginning of a new conversation about what it all means (Author& Howard 2015, Author, 2014; Authors 2012, Author 2012). Perhaps there is nothing more American (even human) than the desire to reinvent oneself, stretching the limits of possibility to bend toward self determination. Using communication to construct an identity in the face of new DNA data creates a fertile new relationship between information and narrative, one that scholars of communication are in a unique position to explore.

Limitations of the study

Future work can address several limitations of this study. First, all of the key concepts of race, narrative, and ancestry DNA shift as we attempt to examine them. Looking for correlations among these three evolving themes is challenging to say the least. Second, our findings are based on a small sample. Expanding our research sample in terms of number, racial, region and age diversity will increase the impact of this work. Despite the limitations of this work, its place in the conversation regarding new perspectives on race in the world after the unlocking of the human genome is compelling and here to stay.

Appendix A: Pretest and Post-test

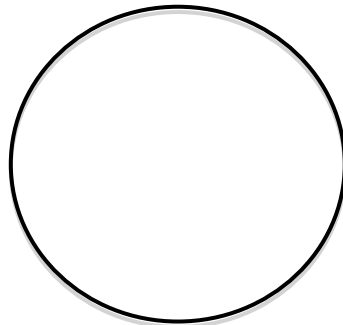
WCU DNA PROJECT PRE-INTERVIEW FORM

In responding to the questionnaire below, please answer as fully and freely as possible. Include any thoughts that come to mind related to your ancestry and recollections and please feel free to complete the survey without concern for giving an “expected” answer or being politically correct. Use an additional sheet of paper if necessary.

Your participation is greatly appreciated.

.....

1. Please tell what you know about your ethnic background.
2. Please share a story you have heard about how your ancestors traveled to arrive in America.
3. Are there any gaps or secrets in your family narrative that you suspect?
4. On the circle below (as in a pie chart) please draw how you believe your background is composed using European, African, Latino, and East Asian categories.



5. What ancestry would be unexpected in your background?
6. With whom have you shared your participation in this project?
7. What was their reaction?

8. Given the following census categories, how would you identify yourself?

- a. Hispanic, Latino, or Spanish
- b. White
- c. Black, African American, Negro
- d. American Indian or Alaska Native
- e. Asian Indian
- f. Chinese
- g. Pilipino
- h. Japanese
- i. Korean
- j. Vietnamese
- k. Native Hawaiian
- l. Guamanian or Chamorro
- m. Samoan
- n. Other Asian _____ (please identify)
- o. Other Pacific Islander _____ (please identify)
- p. Some other race _____ (please identify)

You may check more than one category.

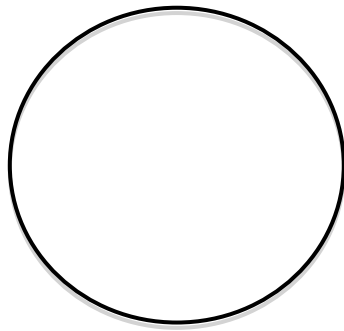
WCU DNA PROJECT POST-INTERVIEW FORM

In responding to the questionnaire below, please answer as fully and freely as possible. Include any thoughts that come to mind related to your ancestry and recollections and please feel free to complete the survey without concern for giving an “expected” answer or being politically correct. Use an additional sheet of paper if necessary.

Your participation is greatly appreciated.

.....

1. Below, please redraw your circle inputting your new DNA information.



2. How do your two pie charts compare?
3. Was the DNA profile what you expected?
4. What three words would you use to describe your reaction to the DNA report?
5. How might you adjust your family narrative based on this new information?
6. How might friends and family respond to this new information?
7. How might society see you differently based on this new profile?

8. Given the following census categories, how would you identify yourself?
- a. Hispanic, Latino, or Spanish
 - b. White
 - c. Black, African American, Negro
 - d. American Indian or Alaska Native
 - e. Asian Indian
 - f. Chinese
 - g. Pilipino
 - h. Japanese
 - i. Korean
 - j. Vietnamese
 - k. Native Hawaiian
 - l. Guamanian or Chamorro
 - m. Samoan
 - n. Other Asian _____ (please identify)
 - o. Other Pacific Islander _____ (please identify)
 - p. Some other race _____ (please identify)

You may check more than one category.

Will the knowledge of your DNA profile change any of your behaviors, for example, might you attend new cultural events, seek out new friends, look up information on line, etc.? Please give examples?

Appendix B: Consolidated Race Categories

RQ 7 New Race Categories	Pre- and Post-Test Census Coding
European	2 - White
Latino	1 - Hispanic, Latino, Spanish
African	3 - Black, African-American, Negro
Asian	5 - Asian Indian 6 - Chinese 7 - Pilipino 8 - Japanese 9 - Korean 10 - Vietnamese 12 - Guamanian or Chamorro 13 - Samoan 14 - Other Asian 15 - Other Pacific Islander
Other	4 - American Indian or Alaskan Native 11 - Native Hawaiian 16 - Other Race

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