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# Questioning Race: Ancestry DNA and Dialog on Race

Anita Foeman, Bessie Lee Lawton & Randall Rieger

AQ1

5 *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 whether 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.*

Keywords: Ancestry DNA; Racial identity

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20 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 (as requested on US Census forms) based on his or her

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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 the next and believed or disbelieved based on accepted social truths. For example, consider the controversy about the black offspring of President Thomas Jefferson, in which some communities assumed the truth of the “rumor” whereas others rejected 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; Le Poire, 2006; Segrin & Flora, 2005); as well as various standards for racial identity and family stories (Foeman, 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 into conflict with one other. Thus, how might DNA information that conflicts with one’s accepted narrative influence 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)

As Fisher famously asserts, humans are “story telling animals” and there are elements of humanness that can best—perhaps only—be 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 (1988) 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 unannoyed” (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 (Carbaugh, 2005; Foeman, 2009; Kurylo, 2010; Lee, 1996; Reyes, 2006), in which family narrative exists, establishes the broader setting that influences family lore and vice 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 it is now, suddenly and unexpectedly, challenged at its very core: DNA.

The work of Hirschman and Panther-Yates (2008) in their preliminary examination of reactions to ancestry DNA testing is helpful as we begin to explore the implications of new DNA data on the understanding of race.

### 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 such mapping has made possible, now interject 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 it complicates long-standing family narratives for two reasons. First, data are 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 relationships 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 having a particular race or ethnicity and have a phenotype and family story consistent with that identity, but have a genetic marker associated with another group (acquired either from an ancestor or simply by chance). Having even a single ancestor in the distant past from whom one inherited a genetic marker is not the same as what we today associate with the idea of race. And having a chance similarity is not related to the idea of race 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. Genetic counselors continually have to address the relationship between genetic data and creating an appropriate family health narrative, for at least two reasons (Gaff & Bylund, 2010). First, because genetic information is interpreted by humans and because genes are not destiny, having an identified genetic marker for a disease does not guarantee that a person will develop a

genetically determined illness, which means that the recipient has to live with a great deal of ambiguity. Second, results of a genetic test for one individual have implications for the entire family. So, a person faced with new DNA health data has to make decisions about sharing the information as well as internalizing it. According to Koerner, LeRoy, and Veatch (2010), this information can be interpreted in different ways, depending on the family style. Families may think in terms of genetic absolutes (“I am going to get this disease and die”), possibilities (“I have a higher risk”), or complete dismissal (“What do they really know?”). In each case, the information may be viewed as a burden, a gift, or a neutral event. Therefore, learning genetic information sometimes creates as many questions as it answers. Genetic 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, which is also referenced in the work of Foeman (2009) on ancestry DNA. 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 effects over time may be profound, and Hirschman and 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 position 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 Foeman began a program of research intended to explore the influence of new ancestry DNA data on racial and family narratives. Over the course of the next five years (Foeman, 2009a, 2009b, 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) test their ancestry DNA, (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, such as Central East Africa or North Coastal West Africa.

It is important to note that various laboratories conduct DNA tests. Each of these laboratories runs its 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 genetic scientists who determine which markers are most informative about ancestry as well as how many links constitute an “adequate” match (e.g., one data point, a combination of DNA

points; DNA Reference Lab, 2012; Shriver & Kittles, 2004). Error rates are also important to acknowledge, and project leaders tell participants that any ethnicity estimate under 10% should be received cautiously.

In her summary, Foeman (2009) presents seven preliminary findings emerging from the review of narrative and social construction theory that are 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 as compared to their white counterparts, (3) white Americans have little awareness of the ancestral 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 (7) unexpected information is likely to be revealed during the process of discovery.

All of the research to date have employed 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 trends in 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 before and after DNA testing because it represents a widespread practical application of how people self-identify. Another question (RQ6) attempts to address issues 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 influence whether they retain their narratives and their identification or adjust them. All of this, of course, is 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: Do participants change their family narratives as a result of their DNA knowledge?

RQ4: Do participants change any behaviors as a result of their DNA knowledge?

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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. ple 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?

## Method

### *Participants*

Forty-five students (13 male, 32 female) enrolled in an intercultural communication class at a university in the mid-Atlantic region of the USA were administered a DNA test between the years 2011 and 2012. Participants' DNA was collected using a buccal swab and samples were sent to an independent laboratory for DNA analysis. The results were sent directly to the lead researcher approximately two weeks later, who then shared the results with participants. Participants were asked to answer an instrument before (pre-test) and after (post-test) they took the DNA test (instruments are available from the authors on request). Participants were recruited purposively to represent a range of racial and/or ethnic groupings. Thus, although the study identifies quantitative trends, participants were selected to allow comparative analysis among racial groupings, rather than to represent the general population. We acknowledge the limitations of this approach as well as its necessity. Each person signed informed consent for the project.

### *Measures*

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 seven 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

**Table 1** Participant response to DNA results.

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



**Table 2** Others' response to DNA results.

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

how others responded to this information. Answers were tallied and combined into five categories for coding (see [Table 2](#)).

RQ3 asks whether participants 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 and 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 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 (*do more research on background; attend more cultural events; be more accepting of other cultures; or 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; and 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 pre-test 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 laboratory. 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 whether there is a difference among racial groupings 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 US Census, and was asked in both the pre-test 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 coded 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 0.8 or higher.

**Results**

Table 1 gives an overview of the participants' reactions to their DNA profile (RQ1). Based on these data, the largest percentage (37%) felt surprised about their DNA profile, followed by positive reactions (24%). A chi-square test for specified proportions was performed to examine whether the distribution of responses deviates from an equal distribution across categories. The test results were significant,  $\chi^2 (4, N = 44) = 15.09, p < .01$ , showing that responses were not equally distributed across categories.

RQ2 asks how others reacted when participants told them their DNA profile. Participants shared their results with other family members (42%), mother only (27%), friends (27%), both parents (22%), boy/girlfriend (22%), and father only (2%).

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%). A chi-square test for specified proportions was performed to examine whether the distribution of responses deviates from an equal distribution across categories. The result approached but did not reach significance,  $\chi^2 (3, N = 30) = 7.60, p < .06$ .

RQ3 asks whether participants tend to change their family narratives as a result of their DNA knowledge. Table 3 shows that participants were equally as likely to dig deeper into their history and not change the narrative at all (29% for both categories). One-fifth would add the DNA information to their narrative, and only 9% would change the narrative completely. A chi-square test for specified proportions was performed to examine whether the distribution of responses deviates from an equal

**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

**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

distribution across categories. The test results were not significant,  $\chi^2(3, N = 35) = 4.43$ ,  $p = ns$ .

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

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 that society will not notice unless they say something (12%). A chi-square test for specified proportions was performed to examine the distribution of responses deviates from an equal distribution across categories. The result was significant,  $\chi^2(3, N = 38) = 18.63$ ,  $p < .001$ . Thus, responses were not distributed equally across categories.

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 into a single category. Table 6 shows that the tendency for a participant to describe his/her background as a single ethnicity vs.

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

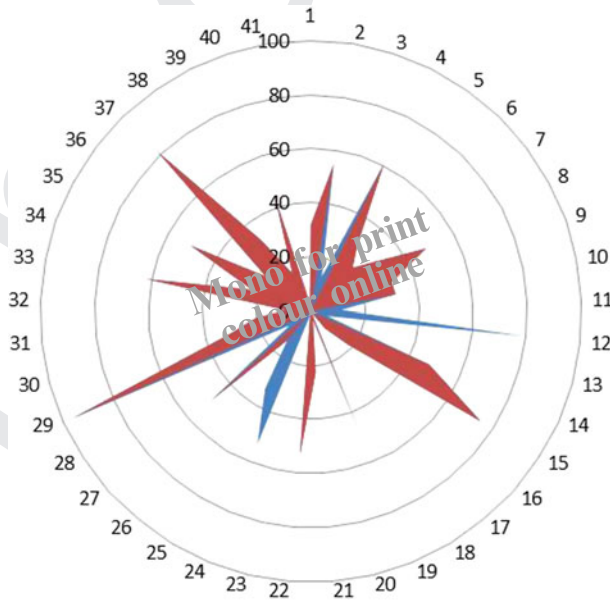
	% (n = 45)
No different	46
Judged based on appearance	13
Judgment will change	13
No one will notice unless I say something	12
Not sure	11
No response	5

**Table 6** Initial identification of participants based on majority ethnicity and use of single vs. multiple ethnicities (European vs. non-European).

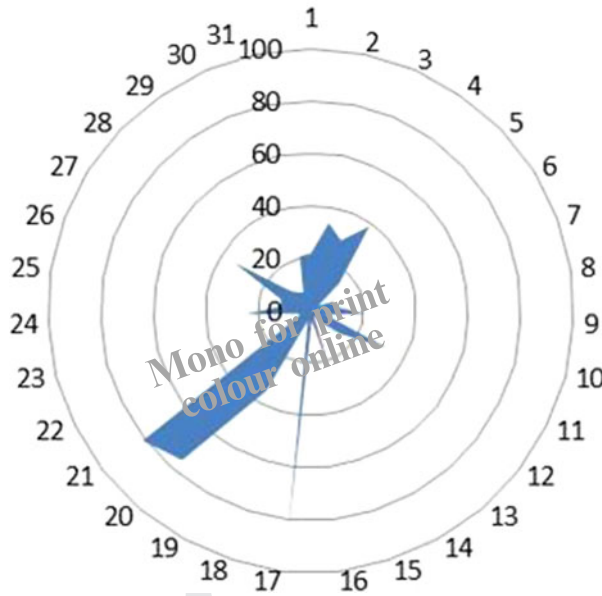
	Single vs. Multiple ethnicity		Total
	Single	Multiple	
European	24	12	36
Non-European	0	9	9

as ple ethnicities was different for people who were majority European/white vs. those who were majority non-European (Fisher’s Exact Test  $p < .0001$ ). Europeans/whites picked a single ethnicity twice as often as they used ple ethnicities, whereas non-Europeans never described themselves using a single ethnicity.

Because of the finding of 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 before and after DNA testing. Graphs 1–4 show the amount of overestimation or underestimation for each racial category. These graphs show the difference in percentage of racial categories from the pre-test pie chart to the post-test pie chart. Each individual’s racial categorization in the pre-test pie chart was compared to the actual post-test pie chart (which was essentially his or her DNA result). The numbers around each circle represent individual respondents. The colors show whether they over- or underestimated that category in the pre-test. Graph 1 shows that participants generally

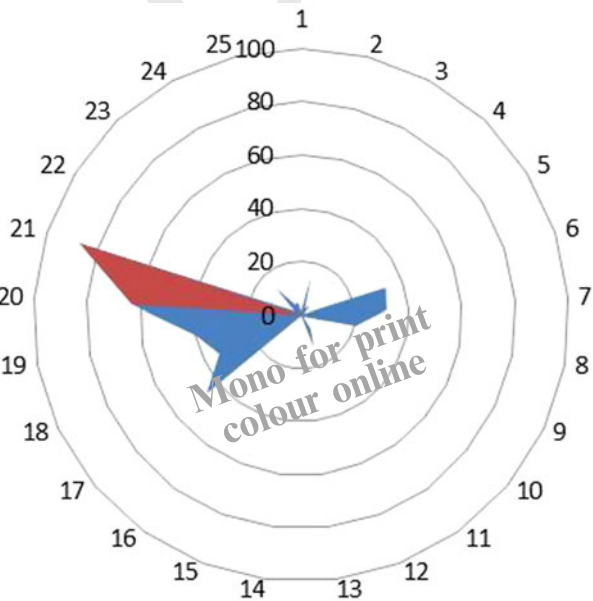


**Graph 1** Difference pre–post for participants: European category (red = overestimated, blue = underestimated).

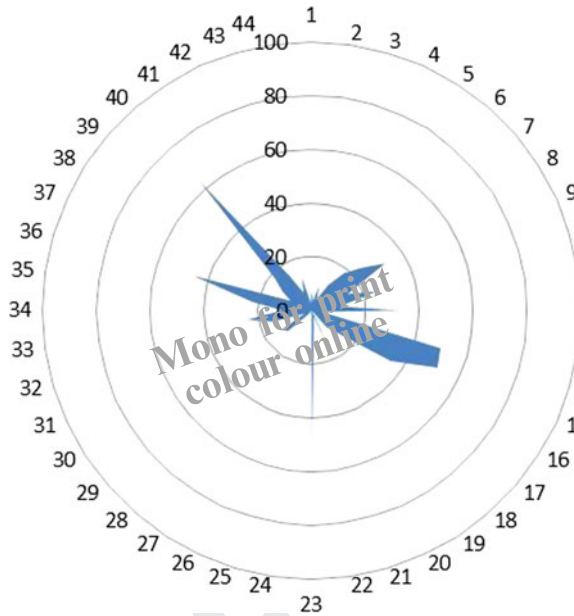


**Graph 2** Difference pre-post for participants: Latino category (red = overestimated, blue = underestimated).

overestimated their European background, and [Graphs 2-4](#) show that participants generally underestimated Latino, African, and Asian backgrounds.



**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 US Census categories for race. Participants were allowed to choose more than one answer. The 16 census categories were consolidated into the 5 racial categories (see Appendix A). As shown 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 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. Table 7 shows that there was a difference among racial groupings in terms of change in census identification based on knowledge of their DNA profile (Fisher’s Exact Test,

**Table 7** Change in census identification by racial group.

	Changed <sup>a</sup>	Unchanged	Total
African	4	1	5
Biracial	1	1	2
European	7	27	34
Latino	1	1	2
Total	13	30	43

<sup>a</sup>All of the changes that occurred were students adding a racial category rather than a complete re-categorization.

$p < .0155$ ). Approximately one-fifth of the European/White participants added a racial category to their census identification, whereas approximately two-thirds of the non-European participants added a racial category to their census identification.

## Discussion

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

First, in general, participants do not change their formal census identification based on DNA data, even if the DNA profile is quite different. Our findings suggest that participants distinguish between genetics, narrative and identity. For many participants, their identity is based on narratives that are plausible but may conflict with genetic reality. Based on their resistance to this change, perhaps participants' racial identity seems to have firmed up perhaps early in life, especially for people in the majority culture (see RQ7). Despite the fact that participants were intrigued and excited by unexpected results, overall, they did not seem willing to integrate a new sense of racial identity as a result of the genetic data. This holds implications for communication scholars who study identity, because it underscores the power of family lore in identity formation, in spite of scientific information that may not support these narratives. Said 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.

Participants 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." Previously existing narrative proof seems to outweigh new genetic information.

Results for RQ7 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 subconsciously experience little benefit in switching from white to multi-racial. For example, one respondent 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.

Similarly, another respondent who identified as white said:

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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, is codified in “one drop” laws that existed in states such as Tennessee, which, in 1910, defined as black anyone “having any African blood in their veins.” According to Hickman (1997), “it has created the African-American race as we know it today” (p. 1163) and has also left the illusion that those who classify themselves as “white” have no “African blood.” This American myth seems to reveal itself at the level of the family and personal narrative. One participant called her mother after her ancestry test results reported that she is approximately 25% African. 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 by a history of slavery and Jim Crow. Thus, African Americans may already think 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 (Hickman, 1997). Even for other racial groupings, however, RQ7 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-categorizing it. RQ6 results also support this trend, showing that non-whites tend initially to self-identify with multiple groupings, as 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 prospect of re-categorizing oneself as other than African American. One student in this research project grew up identifying as African American and wanted to have a DNA test completed 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, and then reported that she was barraged with negative feedback. One person 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 of any race and still 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.



420 How does one begin to merge conflicting genetic and narrative data? Participants focused mainly on the effects that the genetic information might have on their own families' relationships and dynamics, implying that perhaps the starting point for merging narratives is situated not within individuals or among friends but at the level of family members communicating with each other.

425 Second, 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  
430 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  
435 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.

440 It is possible that if participants of all backgrounds continue to share DNA information with their children, their children 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 cultural self-image, with attitudes toward  
445 interracial marriage being more positive than ever (Wang, 2012) and the US Census now offering the option of indicating more than one race. 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  
450 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:

455 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 Poppo Ho was basically lying would break her heart. Some of us had full rides to college because we were Native American.

460 When DNA conflicts with these personal stories, rendering the latter incoherent or distressing, people then tend to try to 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 his or her biological make-up, it then becomes more reasonable to shift his or her 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 (Lawton & Logio, 2009). One participant in this study of Chinese descent who had Native American ancestry 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 one-third of participants will not change any of their narrative or their behaviors even after finding out their DNA, and Table 5 shows that 75% of participants believe that society will not see them differently based on new DNA information. On the flipside, this means that two-thirds of participants will initiate changes in their stories and will investigate the meaning of their genetic data, and about a quarter believe that society will change how they are viewed. As the use of these tests proliferates 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 (Hirschman & Panther-Yates, 2008; Johnson, 2008; Lopez, 1994; Lwin, 2006). Strategies suggested by genetic counselors (Bartels & LeRoy, 2007; Gaff & Bylund, 2010; Koerner et al., 2010) 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. It therefore 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 USA 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 (Foeman, 2012, 2014; Foeman & Howard, 2014; Foeman & Lawton, 2013). Perhaps there is nothing more American (even more 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. We are taking a snapshot of concepts such as race and ancestry DNA even as society and science contest and rework their meanings. Families redefine racially across generations (especially now that the US Census allows for ple identifications) and ancestry DNA labs update, refine, and change their proprietary tests based on both social interest (such as a "Latino" category) and new genetic information. Second, our findings are based on a small group of participants. Expanding our research participants in terms of their racial, regional, and age diversity will increase the influence of this work. Despite the limitations, 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.

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