

Article

DNA Testing and Identities in Family History Research

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Abstract: In the preceding decades, rapid technological advancements and increasing democratisation of historical records have been coupled with scientific data from DNA testing, which has revolutionised the family history industry. Going beyond the traditional archives and databases, DNA profiles present nuanced confirmations, puzzles, and contradictions generated through this biological lens. Family history researchers seek iterative engagements with their familial pasts and, in the process, amplify their contemporary identities. This specialised group of historians illuminates their families' travels through the broader historical landscape, constructing micro-narratives using a broad range of investigative modalities. This article reports on the findings of a large international study (n = 1016) that investigated family history researchers' motivations for undertaking DNA testing, their experiences, and its impact on their perceptions of individual, national, and global identities using Berzonsky's socio-cultural model of identity construction (2003, 2011) as an analytic frame. Using a survey methodology, it was concluded that DNA testing can expand and disrupt long-held notions of identity and has the power to shift perceptions and understandings of the self while simultaneously providing a new era of opportunity to reconceptualise national and international affiliations. It suggests further investigative avenues to assess the potential of DNA testing, which may promote social cohesion, inclusiveness, and global citizenship.

Keywords: DNA testing; family history; identity; socio-cognitive model of identity



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1. The Popularity of DNA Testing in Family History Research

As a global phenomenon, rapid technological advancements and innovations are changing the way people know and understand their pasts, and this evolution is acutely visible in family history research. While technological tools such as online archives and databases have democratised access to the micro-historical landscape over the preceding decades, it is the augmentation of traditional historical research methodologies fused with the scientific process of DNA testing that has revolutionised the family history industry. Sitting under the field of molecular biology and genetics, DNA testing has broadened beyond medical diagnostics, forensic analysis, and pharmacogenomics to complement traditional genealogical research such as breaking through “brick walls”, confirming or disproving relationships, discovering new relatives, and expanding the understanding of ancestral origins (Blom 2022). With genealogical juggernauts such as Ancestry.com offering ethnic origin connections to over 2600 geographic regions worldwide (Ancestry 2024) or MyHeritage and their DNA database comprised of over 8 million people (MyHeritage 2024), DNA testing offers new insights that can enrich and enhance family histories and illuminate the complex interplay between various identity dimensions.

The notion of “identity” is multifaceted and pivotal to the navigation of the present. It extends beyond genetic information as an amalgam of upbringing, lived experiences, beliefs, relationships, and their traditional research discoveries, all of which impact and

shape one's identities. Drawing on a large-scale international survey (n = 1016) of family history researchers, this paper examines the reported impacts of DNA testing on perceived notions of personal, national, and global identities.

There have been numerous studies conducted in recent years about DNA testing and its impacts on consumers. As early as 2008, sociologist Katharine Tyler argued that laypeople's ideas of how biology and genetics mediate the social construction of race were "imperative" (Tyler 2008, p. 1873), given the emerging popularity of Genetic Ancestry Tests (GATs) that aim to fuse both biological and cultural ethnicities. Bobkowski et al. (2020) explored how twenty students at the University of Kansas interpreted the results of their DNA tests and found that while there was a distinct lack of understanding of what the DNA test results meant, they nonetheless reported that the test results "help[ed] legitimise identity" (p. 12) for their participants. Ruckenstein (2017) discussed that the "merging of genetic material and digital participation has been described as a new form of self-discovery and social belonging" (p. 1026), yet Madden et al. (2022), outlining how DNA testing has been used for verification of identity or relationships for visa and asylum petitions in the US, problematise this notion by outlining potential pitfalls in using genetic information "as a proxy for family relationships" (p. 11). The growing databases generated by DNA companies now provide a rich source of biological connections, particularly in the affluent Anglosphere.

2. Identity in Family History Research

Family history research has been widely reported as an important vehicle for identity exploration: making sense of the self in the present, self-examination, and self-understanding (Barnwell 2019; Blom 2022; Basu 2005; Bishop 2008; Nash 2002; Saar 2002; Yakel 2004). Cannell (2011) describes this as an "ethnography of the self", where researching one's ancestral family history reveals an individual enmeshed in family relationships and associations (Cannell 2011). Whether foundational life experiences are rejected, assimilated, or treated with indifference, they nevertheless have a profound impact on personal identity. To fuse ancestors with the notion of "self" is to acknowledge a quality such as intelligence or humour that "runs in the family" or is inherent within genes, and Hackstaff (2010) has labelled this process "naturalization" (p. 663). Clearly, "naturalization" is "creative rather than prescriptive. . . as some traits can be disowned and others embraced" (Lawler 2008, p. 39). Hackstaff (2010) cautions of the dangers of naturalisation as she argues how we imagine the transfer of characteristics across generations, as biological and/or social requires consciousness because historical actors have regularly used biology for political processes of inclusion and exclusion—such as extreme eugenics and the "Final Solution" during the Holocaust (p. 663).

Through the construction of a personal identity, an affiliation with a wider collective identity, such as family, community, or nation, is formed, and these affiliations can overlap. As Anne-Marie Kramer discovered in her Mass Observation Project in England in 2008, the idea of seeking rootedness, or cultural/national affiliation, "often seemed to be accompanied by what correspondents described as pride in their heritage" (Kramer 2011, p. 390). Smith (2006) defines heritage as politically charged and intimately connected to power relations, as it is a "culturally directed process of intense emotional power [that is] both a personal and social act of making sense of and understanding the past and the present" (p. 304). Further, heritage is a shared and unique experience subject to affiliation with a family or a community due to a personal, connecting narrative that is representative of, but divergent from, the idea of "history". For example, Australian families who share a direct descent from convict ancestry are the only ones to whom that heritage belongs. Australian families not descended from convict ancestry still share in the wider 'history' of Australia as a nation of migrants and share a history of colonisation, of dispossession, of assimilation, of integration, or however their personal narrative aligns with the national story. Moving to the global sphere, DNA testing has implications for aligning the self with the flow of human history. Given that we live in an era of unprecedented mass migration,

the future of the planet lies in the ability of its people to understand connections within and across national borders. DNA testing is able to produce profiles that quantify the complex biological make-up of contemporary humans and individualise scientific evidence of history and biological antecedents and determinants. It also challenges concepts of genetic groups, race, ethnicity, and nationality (Blom 2022).

3. Conceptualising Identity

The formation of identity is a complex, multifaceted, and dynamic process, and several theories have been proposed as frameworks for understanding. Influenced by cultural, social, psychological, and personal factors, theories of identity formation offer different perspectives on this evolutionary process. A seminal theorist in this field, Erik Erikson (1968), proposed a stage-based theory of psychosocial development where individuals in adolescence explore different roles and possibilities to establish a cohesive and meaningful sense of identity leading into adulthood. His theory situates adolescence as a slow process of ego growth, as “identifications of childhood are gradually replaced by a new configuration that is greater than the sum of its parts” (Kroger et al. 2010, p. 683). Building upon Erikson’s work, James Marcia et al. (1993) (expanded the concept of identity by introducing four identity statuses whereby “late adolescents and young adults undertake identity-defining decisions” (Kroger et al. 2010, p. 683). These statuses are largely based on the presence or absence of exploration and commitment and are: identity diffusion (lack of exploration and commitment), identity foreclosure (commitment without exploration), moratorium (exploration without commitment), and identity achievement (commitment after exploration). Social Identity Theory (Tajfel and Turner 1986) outlines the role of group membership in shaping individual identity. It suggests that individuals derive part of their identity from the various groups they belong to, and they strive for a positive social identity by positively differentiating their own group from others. Here, individuals identify with and adopt the norms, values, and behaviours associated with their chosen group identities. Narrative Identity Theory (McAdams 2018) emphasises the role of personal narratives in identity formation. This theory positions an individual’s identity construction through the creation of personal life stories that integrate past experiences, future aspirations, and cultural scripts. These narratives provide coherence and meaning to one’s sense of self. Intersectionality Theory (Crenshaw 1989) recognises that individuals possess multiple intersecting social identities (for example, race, gender, and class) that shape their experiences and identities. It highlights the interconnectedness of these identities and how they influence one another, impacting the formation of a person’s multifaceted identity.

The social-cognitive model of identity construction proposed by Michael Berzonsky (2003, 2004, 2011) draws together some important elements of the above theories and provides a useful framework for the research presented in this paper. Berzonsky conceptualises identity as the cognitive structure through which people make decisions, solve problems, and interpret self-relevant information. He further sees identity as a process that regulates the social-cognitive approaches that frame people’s construction, reconstruction, and maintenance of personal identity. Adopting a constructivist approach to his model, he explains that individuals actively construct “theory about who they think they are and what they think they want” (p. 57). He continues that the process of identity construction and reconstruction is subject to individual differences. That is, when constructing self-identity, people approach the constructive process differently—while some might approach the process deliberately, others might unconsciously assume the values, roles, and expectations of others or abandon the same (Berzonsky 2004, 2011). This framework therefore provides a useful lens for engaging with participants’ experiences of undertaking DNA testing and exploring the diverse forms of identity construction that can emerge.

This research aims to answer the following research questions:

1. Why did these family history researchers undertake DNA testing?
2. Did DNA testing impact the respondents’ sense of belonging on an individual, national, and global level? If so, in what ways?

3. Is Berzonsky's Socio-cognitive Model of Identity Construction useful in examining the ways family history researchers process DNA data in relation to identity construction? If so, how?

Here we provide an overview of Berzonsky's socio-cognitive model of identity construction as a means of engaging with the project findings.

4. Identity Processing Styles

Underpinning the socio-cognitive model of identity construction are three identity processing orientations or styles. Berzonsky defines identity processing styles as the variations in how people engage with the challenges of processing information about themselves and negotiating identity conflicts (Berzonsky and Kuk 2022). Berzonsky (2003, 2011) conceptualises three identity processing styles, which are informational, normative, and diffuse avoidant.

Under *informational processing*, individuals "seek out, process and evaluate identity-relevant information" (p. 58). Such individuals are often sceptical about themselves and are therefore open to deliberately seeking new ideas and alternative means of understanding themselves. They intentionally and regularly examine and evaluate their identities to learn new things about themselves use rational and reasoned choices and explanations. This approach leads to the construction of well-differentiated self-identities. The informational processing orientation is "associated with cognitive complexity, problem-focused coping strategies, vigilant decisional strategies, and openness to alternative ideas, values, and behaviors" (Berzonsky 2011, p. 59). As the views and commitments developed from active mental reasoning are repeated, they become normalized, which means less effort and resources are needed to process information, resulting in automation of the process. With the fast-paced advancement of technology, including DNA testing facilities, the informational style is more visible in many present-day institutions. The informational style of identity construction is associated with self-reflection and subject wellbeing (Berzonsky 2003, 2011).

Within the *diffuse-avoidant processing* orientation, individuals are reluctant to confront and deal with conflicts and issues relating to their identities. When people procrastinate about their identities, their actions and choices are dictated by contextual factors, incentives, and adjustments that are transient rather than stable. Diffuse-avoidant connotes both a state of confused self and fragmented self and an attempt to evade personal problems, conflicts, and decisions (Berzonsky 2003, 2011; Berzonsky and Ferrari 2009). The approach used by individuals in this orientation is often ad-hoc, situation-specific, and present-oriented, resulting in a lack of overall unity in the constructed self-identity.

With *normative processing* orientation, individuals adopt goals and values from other people and groups in a passive and automatic manner without critical evaluation and consideration. They have a protectionist approach and seek to avoid information that might threaten established values and beliefs. Persons who use this approach are described as having a sense of consistency and direction, positive wellbeing, and little tolerance for ambiguity (Berzonsky 2003, 2011). In sum, the social-cognitive model of identity construction argues that individuals who adopt different identity-processing styles vary in their use of cognitive processes and strategies when dealing with identity conflicts and issues.

The socio-cognitive model of identity formation has not been applied to DNA studies. Nevertheless, it is possible to draw connections between people who construct their identities through DNA testing and the informational processing approach. These people are often open to discovering new information about themselves and use the information obtained from DNA testing to shape their present and future identities. It represents identity formation as an active process, with individuals playing a key role in applying their cognition to evaluating their own identities and finding answers to questions they may have about themselves. People who are hesitant about doing DNA testing could be associated with the diffuse avoidant, as they may either act within the moment or avoid

the DNA testing altogether. Normative orientation applies to people who may adopt traditional notions of identity obtained from respected persons in the community or from the community as a whole without questioning the source of the identity formulations.

5. Levels of Identity

Identity is a factor that contributes to the transformation of cultures and systems (Zhang 2018). Identity plays a complex and diverse role in fostering a sense of belonging and shaping the composition of a social life of groups or individuals, their interactions, and an overall global outlook (Leve 2011; Zhang 2018; Vatan 2021). Research shows that the development of ethnic, national, and personal identities is a crucial component of people's psychosocial adjustment (Mastrotheodoros et al. 2021; Wang and He 2014). An individual's present identity is not only influenced by the past but is also essential for the future transformation of identity (Zhang 2018). Zhang argues that the process of creating and changing identities for nations, individuals, and the world involves clashes, divisions, and disputes, as well as organic intersections, overlaps, and integrations. Human identity evolves over time, shifting from individual and group levels towards the emergence of global identities (Vatan 2021). Based on this perspective, descriptions such as preserving, safeguarding, and maintaining identities are considered misleading as they do not portray identity as a variable mode of being (Parekh 1995). As Vatan (2021) notes, "sharp lines of the borders between cultures and identities have become more invisible" (p. 119). This section discusses three levels of identity: individual, national, and global, which will be used to explore the respondents' identities in the data.

5.1. Individual Identity

Viewed from the perspective of self-structure, individual identity is deeply embedded in the ideas of self and self-concept (Owens et al. 2010). Owens et al. (2010) argue that identity is one of three variables that inform self-concept, with the others being self-referring dispositions and physical characteristics. Citing Rosenberg's work, they present four identity characterisations: individual identity, role-based identity, category-based identity, and group membership-based identity. They describe individual identity as the primary type of identity that encapsulates an individual's self-descriptions derived from their experiences. Research on racial groups suggests that even though non-white populations appreciated the historical and genealogical relevance of their new genetic ancestries revealed through DNA tests, they were not driven to change their identities because of their prior understanding that they already held multiple racial identities. Consequently, their post-test ancestries do not challenge their pre-test identities (Roth and Ivemark 2018).

5.2. National Identity

National identity is generally viewed as the collective identity of a country's citizens, encompassing their connection to their country's historical and cultural traditions, moral values, ideals, beliefs, national sovereignty, and similar aspects (Liu and Turner 2018). Zhang (2018) notes that national identity is not innate; it evolves as people, boundaries, and laws undergo changes. National identity is viewed as not only emerging from within, that is, based on shared characteristics with other fellow nationals, but also from without, based on the differentiation of the nation-state from other nations and ethnic groups (Triandafyllidou 1998). Anderson's (1983) concept of "imagined communities" speaks to the social construction of national identity. Based on the notion that meaningful national identity can only develop through comparison with others, Triandafyllidou's (1998) research shows how "significant others" can influence the formation and transformation of a group's identity.

Research by McCrone and Bechhofer (2010) revealed that participants did not equate national identity with citizenship but rather perceived national identity as embracing cultural markers such as birth, ancestry, residence, and accent. They argued that the application of such markers of national identity is not straightforward or linear.

Researchers have employed several heuristics to distinguish the various expressions of the complex nature of national identity. Historians have proposed a classification based on civic/ethnic distinctions, while social psychologists tend to favour the patriotism/nationalism divide. These classifications have received support from numerous studies that investigate public perceptions of nationhood (Ariely 2020). Researchers argue that national identity is a political and social movement and the outcome of modern-day nationalism (Liu and Turner 2018).

Ariely (2020) studied the association between nationalism, civic identity, patriotism, and ethnic identity. Results showed a positive relationship between nationalism and ethnic identity, while a negative relationship existed between nationalism and civic identity. There was no positive correlation between patriotism and civic identity, and there was no significant or negative association between patriotism and ethnic identity. Patriotism and ethnic identity were found to be positively related, and patriotism and civic identity showed a positive correlation. These results suggest that ethnic identity is linked to national identity, and this is consistent with other researchers who have investigated ethnic identities under the broader scope of national identity (see Kersten and Greitemeyer 2022; Mastrotheodoros et al. 2021). Several researchers argue that globalisation has resulted in national identity crises (Ariely 2019; Kersten and Greitemeyer 2022; Wang and He 2014). Using China as a case study, Wang and He (2014), for instance, observe that under globalisation, national identity has assumed the dual character of erosion and reconstruction, weakening, and strengthening, and that it is important for nation-states to adapt their structural functions to strengthen national identity and facilitate the process of reconstruction.

5.3. Global Identity

Interdependence within our global society highlights our shared fate and purpose. The ever-increasing global interactions across nations promote the formation of global consciousness, and while national and regional cultures remain, they do not hinder the development of a global culture (Zhang 2018). Diversity and inclusiveness are marked characteristics of global cultural identity formation. Global identity is underpinned by cultural identity, which does not imply homogeneity but a broader understanding of an awareness of one's belongingness to a larger group. Global identity therefore does not connote the assimilation of a national culture but represents a national expansion and self-organisation that supports a wider social evolution (Zhang 2018).

Increasingly, researchers have investigated the relationship between globalisation and national identity (Ariely 2019). Ariely (2019) discusses the impact of globalisation on national identity, with some researchers reporting that people's active engagement in a globalised world stifles the production and maintenance of national identities, whereas others maintain that globalisation strengthens national identities. The notion of identity maintenance conflicts with Parekh's (1995) observation that identity is fluid and cannot be maintained or preserved. Ariely's (2019) findings revealed that people who lived in more globalised countries had weaker inclinations towards national identities than people who lived in less globalised countries. Similarly, Kersten and Greitemeyer (2022) examined the relationship between news consumption, perception of identity, and ethnocentrism. Their findings revealed that there was an association between consumption of global news and global identity development.

6. Materials and Methods

This research used an anonymous online survey that collected baseline data from 1016 participants who indicated that they had undertaken family history research. The participant group of 1016 was heavily weighted towards the Anglo-sphere (Australia 46%, the United Kingdom 25%, the United States 13%, Canada 12%, other 4%), and there was a gender imbalance in the survey, with respondents identifying as female representing two-thirds of the sample. Over half listed their occupation as retired, and 36% reported themselves as "professional". 64% reported having either a bachelor's or master's degree,

and a further 5% held PhDs. This purposeful sampling targeted family history societies in Australia and internationally using invitation emails, online noticeboards, and social media recruiting. The invitation asked family historians who had undergone DNA testing to complete the online survey. The respondent group is reflective of the membership of these family history societies and Facebook groups, and we acknowledge that this is a limitation of this research as it may have narrowed the range of potential survey respondents.

The anonymous survey developed for this study contained both factual and attitudinal items and a combination of open and closed questions. Comprising twenty-two questions in all, the survey asked family historians who had undertaken DNA testing to share demographic information, their motivations for testing, and if this had an impact on their perceptions of personal, national, and global identities. Some questions were also designed to encourage respondents to share narratives about their DNA experiences.

The survey was developed using SurveyMonkey research software. As a feature of the SurveyMonkey software, all quantifiable questions were converted into statistical data, which was used to build a demographic profile of respondents that included location, gender, age, profession, level of education, and ethnic identity. NVivo was used in the analysis process of qualitative data. The longer, open-ended responses were coded, identifying key words and phrases in the qualitative data set. The codes were then collapsed to develop thematic threads, which were used to answer questions of motivation and identity. To answer research question three, the levels of Berzonsky's identity processing orientations were applied as an analytic framework to the data.

7. Results and Discussion

7.1. Motivations for DNA Explorations

In this research, it was found that the vast majority of family historian respondents were motivated to undertake DNA testing as part of their family history investigations. They viewed the testing as another tool of research and one that was unique as it moved away from the traditional archive, records, and artifact quest. Given the nature of the cohort of respondents, that is, people who identify as family history researchers, it is not surprising that the majority (78%) claimed that the testing was a scientific avenue to verify previous research, quantify familial origins, connect with relatives, and reveal further research lines of inquiry. Others expressed their similar motivations as confirming or disproving family stories (10%), connecting with lost relatives (4%), comparing different DNA testing products (4%), for medical purposes (1%), and adding a more scientific element to their familial narrative (8%).

Significantly, 45 percent had taken more than one DNA test, as respondent 18 claimed: "the largest coverage is to hit them all". By far the most popular of these was [Ancestry.com](#) (88%), followed by Family Tree DNA (38%). 23andMe, MyHeritage, and Living DNA were also cited (<20%).

7.2. Integrating the DNA Data and Identity Processing Styles

Berzonsky's (2003, 2011) identity processing styles can be identified throughout the responses, and it appears that many of the respondents demonstrate a pragmatic combination of styles. Demonstrating a normative approach, the majority of respondents (78%) appeared to integrate the information without little to no critical evaluation, supporting the fluidity of identity construction. They reported feeling connected to the ethnicities identified in their DNA and aligning their personal characteristics with these ethnicities. This typical response came from Respondent 230, who claimed they "recognise what are considered some stereotypical ethnic behaviours in myself even though there is no genetic evidence of those behaviours existing ethnically! e.g., Dutch stubbornness, English arrogance, Scottish penny-pinching". In addition, thirty percent of the respondent group took up an information processing stance by actively looking for further information about the different ethnic groups identified in their DNA.

A diffuse-avoidant processing style, which is characterised by a reliance on strategies that enable them to avoid conflict and problems (Berzonsky and Ferrari 2009), can be detected in the reactions of 45% of the respondent group who reported “surprises” in their DNA results. The largest reported “surprise” was the extent of their ethnic groups. Respondent 160 claimed that they have “a lot more ethnicities than I expected” and Respondent 849 said, “No German. My paternal grandfather’s family all came from Germany, but I am not German at all!”. This appeared to be confronting for many, and as Respondent 521 explained, “All my life I have identified as TSI (Torres Strait Islander) when in fact the DNA reports Melanesian. It’s caused me a great reframing of my belief and family’s beliefs [sic]”. Clearly, DNA testing is a powerful catalyst for the re-alignment of biological inheritances with ancestral narratives. Other “surprises” were most often reported as finding an unknown family. For example, Respondent 799 “discovered a cousin that was given up for adoption that the family had no idea of!” while others confirmed familial links. A small percentage claimed that their DNA test did not support their family history research, as Respondent 302 explained: “I started to see a total lack of links to families of some of my ‘paper trail’ ancestors” or that the “results bore little relationship to our known and proven family history or research” (Respondent 58). Some rejected the results of the DNA test: “the test showed I had Scottish ancestry which is wrong” (Respondent 222).

7.3. Shifting Identities

Using information processing, a third of the respondents (n = 345) saw a shift in their identities as a result of their DNA findings. This is a significant proportion given that this group has a heightened sense of their ancestral connections and is therefore more aware than the general population of identity construction (Shaw 2021). Many of this group reported that their ethnic background was broader and more varied than they had previously known. Many viewed this positively and embraced their new connections. Respondent 648 claimed that “My family is more diverse than I imagined. It’s the difference between a black and white image and colour!”. Some were surprised by their unexpected origins: “I have 10% Ashkeanzi Jewish ethnicity. I now understand at a gut level why, since childhood, I have been overly sensitive to all abuses of power” (Respondent 6), or “I always thought I was British. . . I am still adjusting to the American component” (Respondent 210). Overwhelmingly, the respondents in this group expressed greater connection to the countries uncovered in their new ethnic identities, from generic comments like “It made me more connected to those countries mentioned” (Respondent 567). There were some who reacted with high emotion and for whom the DNA results were life-altering, such as Respondent 132, who said, “It gave me a feeling of deeper links to global populations both in the present and in the deep past. It anchored me”. Many were able to rationalise and embrace their connections. For Respondent 638: “I have a more stable identity. I never felt at home in the UK. Always loved France, Scotland, Scandinavia. . . knowing my DNA was from there validated my view of myself. Respondent 74 wondered about “the First Nation concept of ‘connection to country’ and whether [sic] there are some sort of ancestral memories buried in our DNA. . . I have found that places I have lived and worked, and really felt at home, are actually places where some of my ancestors lived by I was unaware of until I researched it later”.

A substantial number underscored personal connections to broader historical patterns and people. Respondents spoke of finding a greater connection to people and the community. This was particularly poignant for Respondent 920, whose uncovered indigenous heritage brought a new view of themselves and their place in history and country:

It confirmed my Australian Aboriginal line, which was a somewhat suppressed family tale. I now feel that I really know who I am, where I came from, and why I am here. I understand migration patterns and feel very connected to this country, especially the traditional lands of my Wiradjuri ancestors.

Others reported DNA testing helped them reach further back into their family’s past and were able to integrate the scientific findings with other evidence: “It brought my family

tree back to about 950 AD, further back than I was aware of. The family was very involved with King Henry VIII family and events, and a even grandmother found guilty in the Salem witch trials. Without DNA I would not be aware of the family history" (Respondent 315). Others identified shared character traits. For example, Respondent 175 saw "There is a rebellious spirit—standing up for your rights—which seems to be passed down", and some aligned their personal identity to that of historical actors (Shaw and Donnelly 2021). For example, Respondent 999 said, "It verified my research into ancestors I have traced who show great leadership: Henry II, Elanor of Aquitaine, William the Conqueror, Charlemagne and many more. I am a leader and both of my children are leaders. I feel like I am on an even footing with these kings and queens, counts and yarls". This stance supports the research of Hackstaff (2010), who suggests that family history researchers tend to identify with the perceived traits of their ancestors.

A smaller number emphasised the confirming or disproving of relationships. For Respondent 501, "It confirmed my fears that my biological father was someone other than my dad. I went from having three full siblings to five half siblings. My whole identity was a lie" (Respondent 201). For others, the lack of DNA connection confirmation was profound and further muddied their familial research: "I am no longer sure of my ancestors on my maternal line" (Respondent 46) or "I no longer feel attached to my birth surname" (Respondent 824) and as Respondent 437 claimed, "I now feel I have no origins".

Some spoke of the new DNA information as a springboard for further research and a deeper understanding of social constructs. For Respondent 648, they "needed to research different countries" and as Respondent 177 explained, "it's [DNA testing] given me and interest to learn more about the history of my ancestor's countries". For others, they have a "much broader understanding of roots versus borders" (Respondent 121) or that "it made me aware that we are all genetically connected and reinforced my belief that race is a man-made construct" (Respondent 1000).

7.4. Disrupting National and Global Identities

For twenty percent of the respondents, their DNA results had a major impact on their understanding of the history of humanity and reframed their identity as a "citizen of the world". These people's perception of history appears to have shifted from a micro to a more macro point of view. For these family history researchers, the importance of race has diminished, and similarities between people now and in the past have been heightened. Such comments as "we are all a mixture of races" (Respondent 912) and again "it [DNA information] made me realise how much humanity is not about race" (Respondent 100) illuminated this idea. Respondent 562 summed up the attitudes of many, claiming, "it is a smaller world than people realise, the degrees of separation are closer". There was an increased appreciation of the broad brush of history, as Respondent 183 puts it: "I can better see the way people have moved around the world, and events such as war, famine, and religion have caused people to be displaced".

This group claims to have moved away from national boundaries and affiliations. As Respondent 5 concluded: "It [DNA information] has confirmed a sense that "national identity" is problematic. I like to think I am a citizen of the world". For some of this group, previously-held national ties are blurred and disrupted as they are broadened to include other cultural and ethnic identities. For Respondent 997, "I don't identify as British now. I just say I was born and brought up there", and for Respondent 362, "It has confirmed how fluid national identity can be". Many of this group have concluded that their national identity has become redundant as they locate themselves in a global landscape. As Respondent 870 says, "the world seems smaller and I am part of a bigger picture with all my ancestors. Xenophobia is a complete and utter waste of space". They pointed to transnational ancestral connections that linked their family's diverse locations across the globe and involved them in global migration, colonialism, and major historical events. DNA testing revealed a shared genetic heritage that transcended traditional national or cultural affiliations and geopolitical boundaries.

8. Implications of This Research

Broadening from the initial focus of this paper, some important findings were further identified in this research, which implicate future research directions and considerations. While a few respondents aligned their individual identity with cultural stereotypes they legitimised despite a lack of biological evidence, most respondents showed that DNA testing provides an avenue to question and trouble cultural stereotypes by acknowledging their social construction. This research has also illuminated that DNA testing has clear psychological impacts on identity, with some revealing trauma narratives and loss of identity that have serious psycho-social implications. Antithetically, DNA testing is promoted by large genealogical companies as a route for connecting with and finding family, and potential traumas and losses are not acknowledged or, it appears, considered. This research has further shown that DNA testing can enhance our consciousness as global citizens, which could be harnessed to promote social cohesion and has the potential to disrupt notions of borders, both real and imagined.

9. Conclusions

This research has found that DNA testing has major impacts on how people perceive and construct their individual, national, and global identities. It adds complexity to personal and collective narratives while simultaneously providing clear information based on ever-growing databases. Paradoxically, the DNA data both challenges and fortifies notions of the self, and it was concluded that Berzonsky's notion of identity integration can be applied to family history researchers and highlights the dynamic nature of identity construction. The respondents presented a combination of dispositions when dealing with their DNA results and their pre-existing knowledge of their family history; they were pragmatic in their responses, and their reactions appeared to be a function of the revealed information. All can be viewed as taking an informational processing approach, as the very act of taking the DNA test speaks of seeking new information. The majority were open-minded and able to integrate the biologically-based information. However, it was concluded that some respondents presented a combination of identity processing styles, and for some, this created tensions between scientific information and long-held beliefs. Due to the intimate nature of the family history narratives, some were reluctant to confront and deal with the dilemmas raised and chose to find fault with the DNA instruments or reject the findings. Others adhered to the more normative processing style in their reactions and accepted all information as unproblematic and simply a useful addition to their familial research.

In this research, DNA testing was found to disrupt traditional notions of global and individual identities by delving into the intricate web of human interconnections across time and space. It was found that national and global boundaries became blurred in the face of this new DNA information, which, when amalgamated, was seen to enhance global consciousness in some respondents. DNA testing positions the individual in a broad sweep of history and provides a more longitudinal view of the "individual within the great waves of human history." (Respondent 987). These important findings suggest an opportunity to reconceptualise national and international identities at a time when global issues such as mass displacement, global warming, and pollution require international collaborative action. The research suggests that, amongst family history researchers, scrutiny and analysis of DNA can be used to problematise notions of identity. The ever-growing DNA databases provide ongoing opportunities to expand the reach of this investigation beyond the Anglosphere to test and consolidate the research findings. We contend that this research opens further investigative avenues to assess the potential of DNA testing to promote social cohesion, inclusiveness, and global citizenship as a counter to tribalism and radicalization.

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