Expanding the Remit of Psychology across Time and Space

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Psychology is a rather young science. Its definition and scope have shifted over the course of the discipline's short history. Wilhelm Wundt (1832–1920), who laid the groundwork for psychology to be studied as a distinct scientific discipline, was arguably the first person to be called a "psychologist" in the modern sense. Six years before he would establish the first psychology laboratory in the world, in his 1873 book, "Principles of Physiological Psychology," Wundt presented psychology as the branch of science that studies conscious experience. To him, psychology's goal was finding different facets of consciousness and mapping the combinations of these facets, which would presumably result in various conscious experiences (see Hothersall & Lovett, 2022). After Wundt, psychology's definition and scope have changed several times, often through scientific "revolutions." For example, while in its initial stages as a scientific field, psychology saw itself as the study of mental processes (including unconscious processes speculated by psychoanalysts), its definition began to slowly shift toward the scientific study of "behavior" in the wake of the behaviorism movement. In the mid-1950s, emerging disciplinary perspectives in computer science, linguistics, and neuroscience reignited interest in mental processes as the focus of psychology. This shift in the definition and scope of psychology has been posited to be the result of the cognitive revolution (Miller, 2003). Perhaps the latest big "revolution" — at least in terms of definition and scope of the field — is the "affective revolution" that began in the 1980s, marking a historic resurgence of interest in studying emotions and affective processes.

From Wundtian studies of consciousness and Freudian psychoanalysis to Skinnerian behaviorism, many scholars maintain—explicitly or implicitly—the notion that culture merely shapes superficial facets of the human mind. Curiously, perhaps due to the cognitive revolution,

some scholars continue to employ an outdated digital computer metaphor (Gigerenzer & Goldstein, 1996) that inaccurately segregates brains and minds into "hardware" (the machinery of the mind), purportedly examined by *hard* sciences (e.g., neuroscience), and "software" (mental contents), presumably examined within the realm of *soft* sciences (e.g., anthropology and sociology). This problematic, dichotomizing metaphor guides them to deduce that there exists an impermeable set of cognitive hardware impervious to cultural influence (Henrich et al., 2023). However, recent research in cultural evolution has shown that not only does culture affect aspects of human anatomy and physiology (Cordain et al., 2002; Kitayama & Salvador, 2017; Thames et al., 2019; Yoo et al., 2016), but also the topology of human psychology, brains, and hormones shift in response to cultural products, including technologies and institutions (e.g., Petersson et al., 2007). In this paper, we make the case for expanding the remit of psychology across time and space.

Social psychology and, more recently, cultural psychology are probably the branches of psychology most interested in psychological variations across time and space. Social psychology is one of the oldest branches of psychology that traditionally takes groups and collectives seriously, studying dynamic relationships between individuals and other people (and groups). Early studies on group behavior in social psychology date back to the late 19th century (e.g., Triplett, 1898); however, the field was invigorated and got more attention after World War II when psychologists wanted to understand the obedience and heinous acts of Hitler's followers.

Experiments by Sherif (1936), Asch (1952), and Milgram (1974) emphasized group conformity and authority's influence in driving obedience, sometimes harmfully. During the 1970s and 1980s, social psychology shifted to a cognitive focus, influenced by advances in cognitive psychology and computer technology. Social psychologists began to explore social

cognition, investigating how people understand the social world and its impact on memory, thinking, and judgments. They also studied the potential biases in decision-making due to cognitive and motivational factors (Kahneman et al., 1982). Around the same time, some psychologists, primarily influenced by the Soviet psychologists Lev Vygotsky and Alexander Luria, continued to make the case for a "cultural-historical" approach, which called for integrating cultural history and psychology (see Cole, 1996). Some American scholars also started to take historical context seriously, most notably social psychologist Kenneth Gergen (1973), who argued that social psychology is essentially the scientific study of behavior in a contemporary historical context. While valuable contributions, these initiatives were rather rare and did not have a substantial impact on mainstream psychology.

Psychology Across Space

Investigating cross-regional differences in psychological outcomes is hardly a new area of inquiry. Philosophers and historians were probably the first to record differences in customs, behaviors, values, and cognitive processes. Of course, some, and perhaps many, of these observations were influenced by powerful authorities and skewed based on the writer's own stereotypes and biases; however, some attempted to simply describe the cross-regional differences in behaviors, emotions, and ways of thinking they found. For example, Herodotus (c. 430 BCE) took such an approach in describing Persians in his writings about Persians' religious practices ("they have no images of the gods, no temples nor altars, and consider the use of them a sign of folly. This comes, I think, from their not believing the gods to have the same nature with men, as the Greeks imagine") or norms and decision-making ("They are very fond of wine, and drink it in large quantities. To vomit or obey natural calls in the presence of another is forbidden among them. Such are their customs in these matters. It is also their general practice to deliberate

upon affairs of weight when they are drunk; and then on the morrow, when they are sober, the decision to which they came the night before is put before them by the master of the house in which it was made; and if it is then approved of, they act on it; if not, they set it aside. Sometimes, however, they are sober at their first deliberation, but in this case, they always reconsider the matter under the influence of wine") (Davis, 1912).

Anthropologists, following the philosophers and historians who preceded them, have also sought to describe the psychologies of diverse populations, often relying primarily on ethnographic methods. However, in the early years of the 20th century, Rivers (1901) was already using some primitive experimental techniques (including reaction times) to study visual perception in New Guinea (e.g., sensitivity to light differences). By the 1930s, the Culture and Personality school, led by Margaret Mead and Ruth Benedict, was using both ethnography and some psychological tasks to document psychological variation across societies. For example, in her famous book, *Coming of Age in Samoa*, Mead (1928) documented personality development, adolescent period, and sexual adjustment in the context of Samoan culture.

Although sparks of cultural research in psychology were present in the 1960s (e.g. Berrien, 1967; Greenfield & Bruner, 1966), and the International Association for Cross-Cultural Psychology was founded in 1972 (Berry et al., 2022), it was in the 1980s that psychologists, influenced by anthropologists such as Richard Shweder (e.g., Shweder & Bourne, 1984; Shweder & Sullivan, 1993), started systematically studying culture using modern psychological measures (Kashima, 2019). Much of what was published in the 1990s compared two or several countries, typically a North American country (e.g., United States or Canada) and an East Asian country (e.g., China or Japan). These comparisons led to many insightful discoveries about cross-cultural differences in thinking and reasoning (Choi et al., 1997), self-construal (Markus & Kitayama,

1991), self-enhancement (Heine & Lehman, 1999), individualism and collectivism (Triandis & Gelfand, 1998), emotions (Shweder, 1993), morality (Haidt et al., 1993), personality (Kitayama & Markus, 1999), and causal attribution (Choi et al., 1999).

This burgeoning expansion of cross-cultural studies within psychology undeniably served as an important impetus, offering insights into the rich tapestry of global psychological diversity. However, cross-national studies typically have some interrelated limitations. First, most of these early studies relied on a small number of populations, typically convenience samples from two countries: a prototypically individualistic society and a collectivistic one. Second, many "cross-cultural" studies erroneously equated "culture" and "country," implicitly ignoring within-country variations in psychological outcomes. This oversimplification could further increase cultural essentialism and promote a "fixed" or "essentializing" mindset when discussing cross-cultural differences. Third, many of these studies were ahistorical, ignoring historical contexts, nuances, and processes that could shape cross-societal differences in psychology today. Fourth, ecological factors and physical features of the environment were ignored in explaining cross-cultural variation in psychology. In other words, the answers to the "why" of cross-cultural variation in psychology were mostly superficial. Fortunately, current directions in (cross-)cultural psychology are promising in addressing many of these concerns (e.g., Gelfand et al., 2017; Kitayama & Salvador, 2024; Muthukrishna et al., 2020; Oyserman, 2017; Sng et al., 2018; Varnum & Grossmann, 2017).

One particularly promising area of research focuses on the geographical distribution of psychological phenomena (Rentfrow, 2020), attempting to develop an integrative framework to understand how cross-regional differences in psychology emerge, persist over time, and become expressed at fine-grained geographic levels (Rentfrow et al., 2008). Work in this area has

documented geographical variation in psychological outcomes, trying to explain that variation at multiple levels of spatial analysis (e.g., county or prefecture, state or province, country or territory; Rentfrow, 2014). Geographical psychological investigations into personality, well-being, norms, and moral values have revealed important geographical differences in psychology between and within countries.

Research on personality, empathy, and implicit associations reveal substantial patterns of variation just within the U.S. Research on personality differences across U.S. states reveals that the Mid-Atlantic, Midwest, and Southern states tend to score higher on Neuroticism (e.g., volatility, anxiety, depression). In contrast, the Mountain and West Coast states show lower endorsements of Neuroticism. New England, Mid-Atlantic, and West Coast regions exhibit higher levels of Openness (e.g., intellect, creativity, aesthetics), whereas the Great Plains and South have lower levels of Openness. These patterns have been consistently observed in multiple studies conducted from 1999 to 2015 (Rentfrow et al., 2013). These data came from five different samples. Over 1.5 million individuals completed different personality measures with their regional information available for research. Substantial variation has been recorded in empathy across the U.S. For example, Bach et al. (2017) used self-report data on cognitive and emotional empathy from 79,563 individuals and found high levels in Oregon, California, and Montana, while states like Iowa and Alabama were lower on empathy. These patterns of variation are not limited to explicit attitudes and self-report personality. Johnson and Chopic (2019) relied on a sample of 348,111 U.S. adults and examined state-level implicit Black-violence stereotypes using the weapons-Black people Implicit Association Test (IAT; Greenwald et al., 2003). The strongest implicit associations of Black individuals with weapons were found

in Connecticut, Indiana, and Iowa, whereas Mississippi, Georgia, and Louisiana had the lowest such associations at the collective level.

Rather than using people's self-report measures or IAT scores, some scholars have relied on region-level behavioral outcomes to create regional indices that reflect a particular psychological phenomenon. For example, Vandello and Cohen (1999) developed an eight-item index ranking states in terms of collectivistic (vs. individualistic) tendencies: percent of the population living alone, rate of people carpooling to work, divorce-to-marriage ratio, percentage of elderly living alone, percentage of households having with grandchildren, percentage of the population with no religious affiliation, the share of Libertarian vote in last elections, and rate of self-employment. Regional variations based on this metric suggested that collectivistic inclinations were highest in the Deep South, whereas individualistic preferences were most salient in the Great Plains and Mountain West. Findley and Brown (2018) created a state-level metric for two kinds of self-control: inhibitory and initiatory. The former was comprised of drunk driving, late credit, obesity, and risky sexual behaviors, whereas the latter was quantified by averaging teeth cleaning, voting, tax filing, and vaccination (Diamond et al., 2018). Using these metrics, Rhode Island, for example, was the highest on initiatory self-control, while Nevada was the lowest. Notably, caution should be exercised when selecting related items at the state level to create cultural indices. These indices should be benchmarked against gold-standard psychological measures, such as validating them against psychometric data from representative samples in each state.

The grouping of psychologically similar individuals in particular groups (e.g., universities, institutions, cults) and regions (e.g., neighborhoods, counties, states) can be analyzed at multiple levels. One level of analysis if psychological homophily (McPherson et al.,

2021). From this perspective, psychological similarity may create a sense of belonging and interpersonal connection. Consistent with this idea, social psychological research has revealed that American adults self-segregate into ideologically homogenous communities because they develop a sense of belonging where people around them share their ideological preferences (Motyl et al., 2014). At the most reductionistic level, genes account for the formation of psychologically homogenous groups. Given that economic preferences, social attitudes, moral values, and personality traits are heritable (see Harden, 2021), it should come as little surprise that genetically similar individuals may cluster together and form relationships (Robinson et al., 2017; Torvik et al., 2022).

While state-level analyses can offer an interesting point of departure, such analyses are capped at the sample size of 50 in the U.S. and cannot explore more finely-grained variations. A new stream of research in psychology has begun to quantify psychological phenomena at smaller geospatial units, i.e., the county level (the U.S. has more than 3,100 counties). For instance, Hoover et al. (2020) derived the county-level estimates of moral values from data obtained through YourMorals.org using Multilevel Regression and Synthetic Poststratification (Leemann & Wasserfallen, 2017). These county-level moral value estimates were then input into a regression framework to predict hate-group activities, revealing that group-oriented moral values (i.e., loyalty, authority, and purity) are highly associated with hateful acts toward outgroup members. More recently, Reimer et al. (2022) used county-level measures of moral foundations (see Graham et al., 2013) to predict COVID-19 vaccination rates in 3,106 counties in the contiguous United States. These authors found that fewer adults are vaccinated against COVID-19 in regions with higher purity concerns (moral intuitions about naturalness, essence, and sanctity). Other researchers have leveraged social media data to extract county-level

psychological information. For example, Curtis et al. (2018) analyzed a large Twitter corpus from 1,384 U.S. counties and showed that words and topics spoken about in geo-tagged Twitter data can be used to predict county-level public health outcomes such as excessive alcohol consumption.

This high-resolution approach to psychology can have real-world implications and applications. Take the findings of Reimer et al. (2022), for example. Knowing that counties high on moral purity are less likely to accept vaccination efforts, policy-makers, and behavioral scientists can use intervention techniques such as moral reframing (Feinberg & Willer, 2019) to increase vaccination uptake and target communities for public health initiatives. Moral reframing, often relying on moral foundations theory (Graham et al., 2013; Haidt & Joseph, 2004), is an approach where an argument, typically not aligned with an individual's beliefs, is presented in a manner that aligns with their moral convictions. This approach has been shown to be effective in health communication (Luttrell & Trentadue, 2024), political persuasion (Voelkel et al., 2023), and climate change policies (Syropoulos et al., 2023), to name some potential applications.

The U.S., given its vast geographical expanse and social diversity, understandably exhibits significant regional variations in morality, personality, well-being, and social biases. Nevertheless, research in smaller and comparatively homogenous nations has also revealed notable psychological diversity. For instance, personality variation has been documented across regions in Great Britain, Switzerland, and Russia (Allik et al., 2009; Camperio Ciani et al., 2007; Götz et al., 2018; Rentfrow et al., 2015). In a study focused on London's districts (Jokela et al., 2015), Openness emerged as the predominant trait in central, urban areas. Personality dimensions such as Extraversion and Emotional Stability were more salient in affluent

southwestern neighborhoods, whereas central London showcased notably lower Agreeableness levels. High levels of psychological diversity have been documented in less WEIRD nations, too. For example, Karimi-Malekabadi and Esmaeilinasab (2019) reported substantial variation in family values and religious beliefs across 28 (out of 31) Iranian provinces. Chua et al. (2019) created a psychological map related to the tightness of social norms (Gelfand et al., 2017) across 31 provinces in China, finding substantial diversity in the degree to which a province enforces and adheres to strict and rigid rules. Tighter Chinese provinces have more governmental control, constraints in everyday life, religious behaviors, and exposure to socio-ecological threats. Similarly, Talhelm et al. (2014) found substantial psychological differences in self-construal and analytic thinking within China.

While recent geographical psychology research has been exceptionally productive in quantifying psychological differences between fine-grained units of space, one critical question remains: Where do these psychological differences originate? As we have discussed above, self-evident in the association between historical exposure to church and current-day psychology (Schulz et al., 2019), much of the cross-regional variance is attributable to history. But ecology matters, too. A subfield that has paid much attention to ecological factors is ecological psychology (Talhelm & Oishi, 2019), sometimes referred to as *socioecological psychology* (Oishi, 2014). Ecological theories posit that "culture" emerges as a response to environmental demands. In this context, "environment" can encompass its literal interpretation, referring to natural elements such as precipitation, topography, and vegetation. In this sense, the environment serves as a plausible explanation for the central role of sailing in Pacific Islander culture and the significance of farming in American culture, while these elements are less pronounced in Inuit culture (Talhelm & Oishi, 2019). Furthermore, the concept of the "environment" can be extended

beyond the purely physical and can encompass social aspects as well (Oishi, 2014; Oishi & Graham, 2010). For instance, the rate of residential mobility within a community over the past decade is considered a component of the social environment, and it can exert an influence on people's generalized trust (e.g., Thomson et al., 2018) or their intent to make connections with neighbors (e.g., Pettit & McLanahan, 2003).

Of course, historical processes interact with ecological factors. Talhelm et al. (2014) assessed the influence of agricultural practices on cultural differences in China, examining whether there were psychological differences between the rice-farming regions of southern Han China and the wheat-farming regions of the north. Chinese students who had been raised in rice-producing provinces exhibited higher levels of interdependence and holistic thinking compared with their counterparts from the wheat-producing areas. Talhelm and colleagues (2014) based their hypotheses on the differing labor needs of paddy rice and wheat cultivation. Henrich (2014) noted that paddy rice cultivation demands intense cooperation, reinforcing the social norms prevalent in patrilineal clans (a kinship structure where an individual's genealogical membership is traced and determined through their father's lineage). Wheat cultivation, on the other hand, allows independent nuclear households and facilitates a more individualistic psychology. Ecological factors may favor particular kinship structures or forms of community organization. Across historical time, these kin-based institutions produce the social environments to which children adapt when growing up, influencing their behavioral outcomes, emotional tendencies, and thinking styles. Interestingly, even when the ecological reasons behind them have ceased to be relevant or have been eliminated, these psychological systems and institutions continue to influence economic prosperity, the creation of novel institutions, and policies around acceptable social behaviors. Thus, rice paddies and wheat farming — as ecological factors that interact with

the historical organization of families — may contribute to our understanding of the origins of psychological diversity within nations (Henrich, 2014).

Another ecological factor that has been given attention to in cultural psychology is the presence of pathogens. Using cross-national correlations (e.g., Fincher et al., 2008) and priming studies (Murray & Schaller, 2012; Schaller & Murray, 2008), researchers have argued that the prevalence of pathogens, at least historically, influences contemporary patterns of psychological traits, such as collectivism and moral values. Hruschka and Henrich's (2013a, 2013b) analyses show that these correlational findings don't hold up well to adding more statistical controls for the non-independence of countries and, in a cross-cultural experimental project, Hruschka and colleagues (2014) failed to show the predicted pathogen relationships. Interestingly, Enke's (2019) analysis suggests that pathogens may influence psychological differences via their impact on kin-based institutions. Yet, the magnitude of the effect and its economic and historical mechanisms are debated (Cervellati et al., 2017).

Of course, as with like rice paddies, the presence of disease also interacts with historical processes to shape psychological diversity, various institutions, and economic prosperity in the present day. For example, Acemoglu et al. (2003) made the case that the main effect of disease on the economic development of nations is not attributable to the direct effect of health issues on income but rather because of their indirect impact via institutions. During the period spanning the 1600s to the 1800s, European colonization extended to various corners of the world. However, certain environments proved exceedingly inhospitable to Europeans as they had pathogens for which European bodies had not developed an immune response. In regions where Europeans could establish residence and thrive, they tended to institute settler colonies characterized by robust infrastructure and institutions. However, in regions where survival was

challenging, Europeans were inclined to forego the development of institutions, opting instead for short-term extractive economies, such as gold mining. Remarkably, Acemoglu and colleagues' (2001, 2003) findings indicated that this historical legacy endures into the contemporary era. Nations that experienced elevated European mortality rates in the past now exhibit substantially lower GDP per capita compared with regions where diseases did not endanger European survival.

There is an emerging line of work highlighting the interaction of culture and ecology over historical time. For example, Szekely et al. (2021) noted that while cultures with tight social norms may integrate new norms more gradually than loose cultures, they possess a stronger capacity for rapid coordination and norm enforcement in the face of ecological threats. This was illustrated by Gelfand et al. (2021), showing that across 57 nations, tight cultures demonstrated more effective cooperation in response to the COVID-19 pandemic, resulting in significantly lower infection and mortality rates compared with looser cultures. In one exceptional study, Giuliano and Nunn (2021) investigated the impact of environmental stability across multiple generations on societal adherence to tradition and the persistence of cultural traits. Analyzing paleoclimatic data spanning from 500 to 1900 AD, these authors discovered that societies exposed to consistent environmental conditions over generations are more likely to favor tradition and sustain stable cultural characteristics. All in all, the high-resolution descriptive lens of geographical psychology coupled with ecological theories can be considered an important advance in expanding the remit of psychology from the individual to the collective in a given region (and time).

Psychology Across Time

One of the most crucial differences that set *Homo sapiens* apart from other animals is that our brain has genetically evolved to rely heavily on the acquisition of a substantial repertoire of techniques, tools, heuristics, biases, motivations, and emotions from fellow members of our social groups (Henrich, 2016; Henrich et al., 2023; Laland, 2017). For survival, even as hunter-gatherers residing in environments closely aligning with our deep evolutionary history, our species depends on a wide spectrum of cumulative cultural knowledge to effectively source food, build shelters, and nurture vulnerable infants. Often, people do not even know why these tools, behaviors, and norms are adaptive (Boyd et al., 2011). Since we have no innate ability or knowledge to create fire or cook, our dependence on the products of this cumulative learning — making fire, cooking raw food, and detoxing crops — extends deep into our evolutionary past, spanning at least several hundred thousand, possibly over a million, years (Wrangham, 2009). Throughout this historical time, our brain, alongside its ability to acquire, retain, organize, and disseminate cultural information, underwent significant expansion, propelled by an accumulation of adaptive beliefs, tools, and technologies produced by cultural evolutionary processes (Muthukrishna et al., 2018; Street et al., 2017).

Through cultural-evolutionary processes, historical events can create psychological differences between different populations around the globe. To understand current-day psychology, more researchers are leaning on cultural-evolutionary theories and historical records of different kinds (Atari & Henrich, 2023; Baumard et al., 2024; Henrich, 2020). Engaging with history and collaborating with scholars in history, economics, anthropology, and digital humanities benefit psychologists in at least two ways. Firstly, previous cultural or ecological variations explain contemporary cross-regional psychological diversity. Second, insights into the psychology of "dead minds" (Slingerland & Chudek, 2011) can be drawn from temporally

tagged data. Historical data can be sourced from ethnographic records, archaeological excavations, annotated historical books, longitudinal and multi-wave survey responses, art items, physical relics, and various historical textual data, among others (Muthukrishna et al., 2021).

A growing body of evidence suggests that our capacities for cumulative culture gave rise to increasingly complex communicative repertoires, which eventually became languages. The emergence of increasingly complex languages would have both opened an important channel for cultural transmission and have created selective pressure for genes that made us better at learning and using these languages (Henrich 2016; Christiansen & Chater, 2022). With languages, our species has had a unique and high-fidelity code for transmitting cultural information from one generation to the next. Language itself, or at least the cognitive capacity for having language, might be as old as 150,000 to 200,000 years (Pagel, 2017). Archeological evidence and analysis of cave engravings have shown that *Homo sapiens* was behaviorally modern (i.e., showing sparks of cognitive abilities integral to language) at least 77,000 years ago (Henshilwood et al., 2002). For millennia, humans have employed language and created written documents with a documented history spanning at least 5,000 years (Walker & Chadwick, 1990). Today, a conservative estimate is that over 160 million unique books exist in the world since the invention of Gutenberg's printing press in 1440, and this number grows every day. For example, in 2022, approximately 4 million new books, including self-published ones, were published in the United States. These writings encompass a wide range of materials, including extensive religious texts, millions of songs, numerous speeches, fiction, and comprehensive dictionaries that elucidate and interpret entire vocabularies. These written records of human language constitute a valuable yet largely untapped source of information about the human journey. Computational text analysis of historical scripts of many kinds is a fruitful window into the minds of dead people (Atari &

Henrich, 2023; Jackson et al., 2022; Muthukrishna et al., 2021) and a powerful tool for studying cultural change (Berger & Packard, 2022). As text-analytic tools become more sophisticated, we can extract more facets of psychology from historical corpora with more accuracy and reliability (Boyd & Schwartz, 2021; Demszky et al., 2023).

Museums, libraries, and archives house extensive collections of historical documents, including letters, books, biographies, treaties, and more. Many countries have invested in digitizing their historical records to preserve their cultural heritage and to make them more accessible to scholars and the public. Even though historical documents have previously been published in physical outlets, machine-readable documents offer a wide range of possibilities beyond traditional methods to extract psychological information. This includes the application of Natural Language Processing (NLP) techniques typically developed in industry for commercial purposes and sometimes sponsored by government entities but largely applicable in psychological text analysis (Hirschberg & Manning, 2015). Theoretically, everything achievable with contemporary texts can also be applied to historical texts. The field of digital humanities seeks to leverage digital data for humanities research by integrating traditional qualitative approaches with quantitative, computational techniques and tools, for example, information retrieval, NLP, and data mining (Piotrowski, 2012). More recently, digital philologists have developed text-analytic pipelines and toolkits for pre-modern languages (e.g., Burns, 2019), practically enabling researchers to extract information — including psychological phenomena — systematically from pre-modern texts. Boyd (2017) called for the integration of psychological text analysis and digital humanities, making the case that "various methods, including historical reports, psychological text analysis, subjective interpretation, and automated methods of

understanding within- and between-text relationships, can all inform one another to create benefits that no single method in isolation could ever hope to achieve" (p. 182).

Based on the well-supported premise that language use meaningfully reveals psychological states of the producer of that language (see Pennebaker & King, 1999; Pennebaker et al., 2003), historical text analysis has been a particularly fruitful methodology in quantifying psychological variation across historical time. Researchers have used various NLP techniques to quantify psychological variation across time for a number of psychological phenomena such as stereotypes (Charlesworth et al., 2023), gender bias in cultural products (Boghrati & Berger, 2023), individualism and collectivism (Greenfield, 2013), prosociality (Martins & Baumard, 2020), mind perception (Ash et al., 2023), norm tightness (Jackson et al., 2019), moral sentiment (Xie et al., 2020), artistic creativity (Berger & Packard, 2018), rationality (Scheffer et al., 2021), cognitive distortions (Bollen et al., 2021), emotional expression (Brand et al., 2019), concrete and abstract language (Snefjella et al., 2019), personality (Ye et al., 2018), happiness (Oishi et al., 2013), religiosity (Younes & Reips, 2019), and depression (Teepe et al., 2023). Given the enormous amounts of historical texts available and in-progress initiatives to digitize even more historical records, text analysis remains the most promising method in historical psychology (Atari & Henrich, 2022). Yet, there are many other historical sources and methods that can be used to infer the psychology of dead minds in their time.

In a historical psychological analysis of ancient Chinese corpora, Chen et al. (2024) compiled an NLP pipeline for the classical Chinese language. This pipeline combines the existing psychological knowledge base (e.g., items in psychometric scales) with the power of contextual language models (e.g., Devlin et al., 2018) and extracts aspects of psychology from historical texts. To benchmark this pipeline for historical-psychological text analysis, these

authors examined the political reforms in Wang Anshi's New Policies during the 11th century, which at the time provoked mixed reactions from Chinese officials. Chen et al. (2024) used a database manually gathered by Wang (2022), who manually annotated the sentiments of major officials toward this social reform. Using items measuring traditionalism and authority, they created a classical Chinese version of contemporary questionnaires and extracted traditionalism and respect for authority from ancient corpora. The correlation between the text-based measure of traditionalism and expert annotations was large and significant, supporting the validity of this NLP technique for historical psychology. These findings buttressed the power of modern NLP toolkits for measuring psychological outcomes in times far gone.

Analyzing paintings from different eras can provide a rich tapestry of insights into the social-psychological milieu of the times in which they were created. For example, the facial expressions and body language of figures in paintings can give clues about the emotions and psychological states that were prevalent or considered prestigious and socially desired. Using extensive art databases (e.g., National Portraits Gallery and Web Gallery of Arts), Safra and colleagues (2020) demonstrated an increase in cues of perceived trustworthiness in portraits between 1450–2000. This implies a growing importance placed on portraying oneself as trustworthy during the early modern to modern times. Their analysis suggested that this upward trend was correlated with economic growth. Safra et al.'s (2020) findings align with other work on the cultural and historical roots of Western democracies (Ruck et al., 2020), indicating that merging digital humanities and psychology with traditional databases compiled by economists can offer valuable insights into the cultural evolution of generalized social trust, impersonal cooperation, and democracies. Notably, the same team replicated their own work recently, finding a positive linear relationship between time and perceived facial trustworthiness in

portraits of elites in a new data set but failed to replicate the effect of economic growth, especially when time (year) was added as a covariate in their regression framework. These authors concluded that the variance in the importance of appearing trustworthy may be small in size, and thus require large-scale and carefully curated samples evenly stratified across historical periods (Guillou et al., 2023).

Economists have also recently relied on paintings to extract psychological information. To chart emotions over periods and among different countries, Gorin et al. (2023) studied paintings as reflections of their respective eras and contexts. These authors used an open-access art database containing roughly 1,000,000 paintings from over 15,000 artists. Each artwork was linked to an artist, its creation year, and its origin. This database was further enriched with details from the artists' biographies. Using transfer learning and pre-trained image classification algorithms (i.e., the application of a pre-trained machine-learning model on a new problem or data set), these authors identified the emotions expressed in the paintings and subsequently related these emotions to various artist attributes, such as age, gender, influences, and styles, as well as the time and place of the artwork's creation. Consequently, the team charted emotional trends in nearly 20 countries, predominantly in Europe, starting from the 14th century.

Physical artifacts (e.g., monuments) can be rich sources of historical data for historical psychologists. For instance, Henderson et al. (2021) considered the historical context and meaning of Confederate monuments and correlated Confederate monuments to race-based violence, specifically lynchings, an extreme form of race-based violence sanctioned by institutions, arguing that if Confederate monuments reflect race-based violence, Confederate monuments and lynching should be associated. In line with their hypothesis, Henderson and colleagues (2021) found that the number of lynchings in a U.S. county was significantly

associated with the number of Confederate monuments in that region after controlling for covariates such as population. Economists have recently examined the influences of Confederate monuments in the South. For example, Taylor (2023) merged monument, census, and election outcomes data and produced a panel of election-year related to confederate counties between the years1878 and 1912. Taylor (2023) used the historically staggered and geographically distributed presence of monuments in an econometric approach (generalized difference-in-differences), demonstrating that these monuments caused Democratic votes to go up, decreased general voter turnout, and decreased the number of Black residents.

Buttrick and Mazen (2022) have shown that to understand the uniquely American belief that firearms provide personal security, one needs to understand the history of disruption of White political dynamics due to the liberation and the subsequent empowerment of Black Americans. These authors showed that the prevalence of enslavement in a Southern U.S. county (as recorded in 1860) predicts the rate of contemporary gun ownership in that county after controlling for covariates such as current-day criminal activities, the extent of racial segregation, and contemporary voting behavior. These authors also included ruggedness as a proxy for Southern honor culture, but the effect of slavery was found to be larger than that of honor. Largely based on these findings, Trawalter et al. (2022) proposed that social-psychological research on racial dynamics should take historical processes seriously.

Much of the above findings are short in historical coverage, ranging from several decades to several centuries. However, historical psychology's coverage can be expanded to the ancient human past with older data sources, for example, by interpreting ancient DNA data (e.g., Wohns et al., 2022; see Reich, 2018) or examining excavated human remains. Excavated skeletal data can be fruitfully used for historical-psychological research. For example, Baten et al. (2023)

examined interpersonal violence throughout the pre-Classical period (about 12,000 and 400 BCE) by using a novel data set on cranial injuries and weapon-related lesions from skeletons of over 3,500 people excavated across seven countries in the Middle East (Iraq, Turkey, Lebanon, Iran, Israel, Syria, and Jordan). These authors demonstrated that interpersonal violence during this time frame reached its zenith during the Chalcolithic era (approximately 4,500–3,300 BCE). This was followed by a consistent decrease throughout the Early and Middle Bronze Ages (between 3,300 and 1,500 BCE), which was then followed by a pronounced increase from the Late Bronze Age to the Iron Age (1,500–400 BCE). By recording changes in violent behaviors over a wide time frame and vast geographical range in a historically significant context, Baton and colleagues' (2023) findings expanded our understanding of the historical psychology of violence. These descriptive results have broader implications: for example, the pattern of fluctuations in violence points to the notion that the development of state capacity and the growth of legal frameworks and trading systems account for the declining rates of homicide over time (Eisner, 2014; Pinker, 2011).

Besides deep historical variations in violence, recent historical processes can help us understand the current-day psychology of populations within national cultures. For example, based on the social-psychological literature on honor culture in the United States (Cohen et al., 1996), Grosjean (2014) tested the hypothesis that the higher rates of homicide in the South of the country originate from the settlement by herders from the fringes of Britain in the 18th century, by merging county-level information on birth country from historical U.S. censuses with current homicide records. This study discovered that the historical migration of the Scotch-Irish played a significant role. Nonetheless, there was more nuance to the hypothesis: Grosjean's (2014) findings showed a considerable influx of Scotch-Irish immigrants in both the North and the

South; however, the cultural trait and its impacts appeared to endure in the South but not in the North. This was found to be due to the Southern states' less established legal and institutional systems. In essence, the culture of honor was a more adaptive cultural trait and lingered in areas of the U.S. where a central legal system was less present or powerful, which is consistent with computational models of the co-evolution of legal systems and culture of honor (Nowak et al., 2016), mathematical models of aggression based on game theory (McElreath, 2003), and empirical cross-cultural research (Wang et al., 2024). In places where the rule of law is more established, the psychology underlying sensitivity to disrespect and insult seems to wane over time.

Another source of historical data with rich psychological information is published scientific articles. Some general-audience journals have been continuously published for centuries. For example, launched in 1665, "Philosophical Transactions" is considered the world's longest-standing scientific periodical. Some psychological journals have also been publishing papers for over a century. For example, the first volume of "Psychological Bulletin" was published in 1904. In addition to analyzing the texts of published work, cross-temporal meta-analyses can also serve as a tool to create continuous measures of psychological constructs across time. For instance, Yuan et al. (2022) investigated the history of experimental studies on cooperation in social dilemmas by meta-analyzing 511 independent studies conducted over 60 years between 1956 and 2017, with 660 distinct effect size estimates based on data from 63,342 adults from the United States. These authors found a slight upward trend in cooperation over the course of six decades. Such meta-analytic findings can easily be turned into time-series data for downstream historical-psychological research.

Much of what we reviewed above focused on documenting psychological variation across time. But do historical processes have long-lasting effects on the vast diversity of psychological outcomes we see in the world today? Schulz et al. (2019) investigated the historical roots of WEIRD (Western, Educated, Industrialized, Rich, Democratic; Henrich et al., 2010) psychology and established how kinship-related policies implemented by the medieval Roman Catholic Church (e.g., the ban on cousin marriages) diminished extended family connections and fostered a more individualistic societal structure and a WEIRD battery of psychological outcomes. To substantiate this, these authors integrated information from various fields, merging historical records of exposure to the medieval Western church, ethnographic information on kinship norms such as cousin marriage and polygyny, and present-day data on various psychological traits. This work suggests that the Church, by breaking down the intensive kinship ties of pre-Christian Europe with its bans on practices like cousin marriages and polygyny and by regulating inheritance and where newlywed couples lived post-marriage (ideas that cannot be directly found in the Bible, but appear to be a combination of taboos and specific prohibitions) altered people's psychology toward a WEIRDer way of thinking, feeling, and behaving. This increased the willingness to relocate and paved the way for the more individualistic social structure we see today in the West. As an additional analysis, the authors demonstrated that second-generation immigrants in Europe exhibited distinct patterns of WEIRD psychological traits compared with the native-born population, with these differences partly attributed to the kinship institutions and family structures prevalent in their ancestral countries. These findings point to the fact that to understand psychological diversity across regions, one cannot disregard the crucial role of historical processes.

The New Synthesis: Psychology of *Homo Sapiens* across Time and Space

Given the abundance of emerging empirical evidence reviewed above, we call for psychology to become a historical and geographical science. There may have been several reasons why this movement, a chronospatial revolution, has yet to take off. The first reason, possibly the most important one, has historically been the lack of psychological data across time and space ("a problem in data"). Second, psychologists have self-imposed restrictions on the remit of their discipline—leaving collective phenomena to be analyzed by others, possibly sociologists, anthropologists, political scientists, and economists. Further, the neuroscienceization of psychology departments has exacerbated the issue, making psychology an even more reductionistic, microscopic, and myopic area of inquiry void of socio-historical context ("a problem in scope"). Third, and related, is the issue of inter-disciplinary collaborations. Exceptions aside, most large-scale psychological collaborations have been disciplinarily parochial, that is, psychologists collaborating with other psychologists to investigate or replicate psychological findings — typically a well-known psychological finding that has received research attention ("a problem in synergy"). Indeed, cross-pollination in interdisciplinary research stands as a beacon of innovation, facilitating the convergence of diverse perspectives and fostering breakthroughs that a single discipline might overlook. When/if psychologists collaborate with experts from neighboring disciplines, they unlock new dimensions of understanding, transcending traditional boundaries and encouraging a holistic approach to complex problems. Fourth is psychology's problem in theory: the dearth of a cumulative theoretical framework(s). Without a meta-theoretical framework able to generate testable hypotheses across various psychological subdisciplines, research initiatives often emerge from researchers' personal intuitions and cultural preconceptions embedded in lay perceptions ("a problem in theory").

We argue that all four problems may be resolved by expanding the remit of psychology across time and space. We will start with "a problem in data." Unlike a decade ago, computational methods primarily developed in computational sciences have become powerful tools to reliably extract psychological information from text (Atari & Henrich, 2022). Spatial data are also becoming increasingly available for psychologists through different sources such as global multi-wave studies (e.g., World Values Survey) and long-term online survey projects such as Gosling-Potter Internet Project (Gosling et al., 2004), YourMorals (Graham et al., 2011), MyPersonality (Kosinski et al., 2015), and Project Implicit (Xu et al., 2014). Notably, there is a unique set of methodological challenges as psychologists venture into the unfamiliar terrain of geographical and ecological psychology with unconventional data types, sources, and statistical challenges that are not typically covered in their conventional training. Fortunately, tutorials and methodological guides are being published in psychology to address problems such as post-stratification of psychological data (Hoover et al., 2020), spatial autocorrelation (Ebert et al., 2023), and comparison of national cultures (Claessens et al., 2023). Since historical and spatial data are usually non-experimental, psychologists can make use of methods developed in econometrics created for causal inference in non-experimental data (e.g., instrumental variables regression, regression discontinuity analysis). Overall, new methods and data sources in the emerging fields of historical psychology (see Atari & Henrich, 2022) and geographical-ecological psychology (Rentfrow, 2020; Talhelm & Oishi, 2019) provide untapped resources for future research across millennia and meridians.

With regard to "the problem in scope," it appears that most psychological scientists have limited the scope of their investigations to individuals rather than collectives, with the tacit assumption of universal laws about human behavior void of historical and cultural forces that can

substantially alter human psychology. Of note, there was a focus on collective-level psychology in the first half of the 20th century, but the focus of researchers shifted toward individual-level phenomena in the second half (e.g., Goldenberg et al., 2020). This shift may be a product of the historical legacy in eighteenth-century thought when physical sciences had produced much innovation and knowledge; the potential of employing the scientific method in studying human behavior was regarded with considerable optimism. If "general" principles governing human behavior could be identified, it would be a matter of solving some equations to reduce intergroup conflict, find solutions for mental health issues, and develop optimal social conditions for all humans (see Strickland et al., 1976). Furthermore, explicitly fascinated by machines and ignoring human diversity across time and space, Russel (1956, p. 142) suggested transforming general principles of human behavior into equations to develop "a mathematics of human behavior as precise as the mathematics of machines." So, many shifted toward individual-level psychological phenomena using lab experiments and later online experiments.

Some social psychologists disagreed with this ahistorical approach. For example, Gergen (1973) made the case that "the continued attempt to build general laws of social behavior seems misdirected" and that "in essence, the study of social psychology is primarily an *[sic]* historical undertaking" (p. 316). He concludes that "it seems myopic to maintain disciplinary detachment from (a) the traditional study of history and (b) other historically bound sciences (including sociology, political science, and economics)" (Gergen, 1973, p. 319). While Gergen and others (e.g., Cole & Engestrom, 1993) have called for the expansion of the scope of psychology across time, the field remains largely ahistorical and overly focused on individual-level experiments. We hope that by integrating new data sources and causal inference methods in analyzing time

series and geospatial data, psychology can become a more generalizable science covering people who are living “far away” and “far gone.”

The problem in synergy is more easily palatable. There is already a massive body of work in fields such as economic history and historical political economy that are essentially about or draw upon psychological phenomena (Alesina et al., 2013; Charnysh et al., 2023; Enke, 2019; Galor & Özak, 2016; Nunn & Wantchekon, 2011; Serafinelli & Tabellini, 2022). Some of the older collaborations between economists, anthropologists, and psychologists have succeeded in stimulating research across time and space (e.g., Henrich et al., 2005), and recent such collaborations seem particularly fruitful and promising (Gelfand et al., 2024).

The “problem in theory” in psychology, and by extension to other behavioral sciences, was first coined by Muthukrishna and Henrich (2019). These authors argued that many subfields within psychological science lack an integrative (meta)theoretical framework that permits deriving specific and testable hypotheses from an overarching framework. Lacking such an integrative theoretical framework results in haphazard verbal stories about human behavior that have no implications for what we expect in various contexts. For example, these authors argue that “psychology textbooks are largely a potpourri of disconnected empirical findings on topics that have been popular at some point in the discipline’s history” (p. 221), which is a symptom of contemporary psychology lacking a unifying and integrative theory of the human mind. Muthukrishna and Henrich (2019) provide examples of how cultural evolution can be used as an integrative theoretical framework to unify psychological science and neighboring fields. Cultural evolution encompasses both time and space; therefore, to take cultural evolution as a general premise of human behavior, psychology needs to become both a historical and geographical science.

It is worth noting that, promisingly, some recent psychological investigations have tested psychological hypotheses across time and space, informed by cultural evolutionary theory. For example, Atari et al. (2022) examined the spatial and temporal relationship between pathogen prevalence at multiple levels of analysis, showing that moral purity is linked to pathogen prevalence across U.S. counties, nations, and recent history. Jackson et al. (2019) conducted a set of archival cross-national and historical analyses, finding that nations, U.S. states, and pre-industrial societies with tighter cultural norms tend to have higher levels of prejudice based on national origin, skin color, religious background, and sexuality, providing evidence that tightness of norms explains the relationship between prejudice and history of socio-ecological threat. Du et al. (2022) explored the association between economic inequality and personal values across time and space. Looking at cross-national (77 nations), cross-regional (51 regions within the United States), and longitudinal data (a two-year longitudinal design), the authors showed that economic inequality acts as a predictor of self-enhancement values, especially within nations. Such multi-methodological and time-and-space-aware studies provide the opportunity for researchers to draw a holistic picture when examining psychological topics.

Concluding Remarks

Historically, the discipline of psychology has predominantly emphasized (or tacitly assumed) the universality of psychological processes, often inadvertently sidelining the nuances and causal events rooted in historical processes and socio-ecological factors. Psychology is currently transitioning from a state akin to “alchemy” to one resembling “chemistry” (Muthukrishna, 2023), and central to this transformation, we contend, is the broadening of psychology’s remit across the dimensions of time and space. As we stand at the crossroads of an increasingly globalized and interconnected world, there is a burgeoning need for psychology to

adopt a more holistic lens—one that not only examines human behavior, emotion, and cognition but also incorporates the rich mosaic of shared history, the dynamism of cultural shifts, and the variations ingrained by ecology and cross-regional differences. Such an integrated approach not only enriches our microscopic understanding of *Homo sapiens* but also draws a more telescopic map of human psychology that truly encapsulates the human journey.

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