

THE DEVELOPMENT AND EXPLORATORY FACTOR ANALYSIS OF CULTURAL
WEALTH AS A PROTECTIVE FACTOR AGAINST RACISM IN THE WORKPLACE: THE
CULTURAL WEALTH AT WORK INVENTORY

by

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ABSTRACT

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The present study focuses on the development of the Cultural Wealth at Work Inventory (CWWI), a strengths-based, psychometrically-informed instrument designed to measure six dimensions of community cultural wealth (CCW) among United States workers who identify with groups disproportionately affected by racial and ethnic marginalization. Drawing upon Yosso's (2005) Community Cultural Wealth framework and guided by Quantitative Criticalism (QuantCrit), this dissertation addresses the limitations inherent in traditional cultural capital theory and prior CCW measurement tools, which frequently rely on deficit-based assumptions and Eurocentric norms. The CWWI was developed through a thorough, multi-step process that included theoretical grounding, item generation, expert review, pilot testing, and survey administration to a sample of 243 employed adults aged 18–64 in the US from groups disproportionately impacted by racial and ethnic marginalization. Exploratory factor analysis (EFA) identified six distinct, meaningful factors relating to aspirational, familial, social, linguistic, navigational, and resistant capital. These dimensions illustrate how workers utilize various cultural assets to navigate and oppose structural racism in work environments. The CWWI showed high internal consistency reliability across all subscales. By emphasizing the cultural

resources and resilience of workers disproportionately impacted by systemic oppression, the CWWI provides a culturally responsive instrument to analyze protective factors within vocational contexts. This metric addresses a significant gap in the existing literature by extending CCW theory beyond the educational environment into the professional sphere, thereby offering new avenues for understanding how individuals from groups disproportionately impacted by racial and ethnic marginalization resist racialized stressors, sustain authenticity, and strive for career success. The results bear implications for future research, workplace equity initiatives, and vocational interventions that respect the lived experiences and strengths of Communities of Color.

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To my parents,
Who crossed oceans and borders
so that I could imagine new ones.

To my family, community, and ancestors,
Whose resilience lives in every page of this work.
May your strengths be named and contributions honored.

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Chapter 1: Background

Cultural Capital Theory and Its Role in Understanding Social Inequality

Scholars from various disciplines, including psychology, sociology, and education, have been using cultural capital for at least decades to develop an understanding of how social inequality is reproduced and sustained (Davies & Rizk, 2018). Cultural capital, initially conceptualized by Pierre Bourdieu, refers to a broad range of symbolic elements, such as taste, knowledge, and skills, that individuals have within society and which are accumulated throughout their lives and, importantly, which have value in different contexts to varying degrees (Bourdieu, 1986). This capital can be internalized through esteemed abilities, objectified through possessions like artwork or books, or institutionalized through titles and degrees (Ayling, 2019; Bourdieu, 1986). Bourdieu's theory demonstrates how access to and control of these forms of capital can seriously affect and shape an individual's opportunities, experiences, and social mobility.

Scholars increasingly highlight how race and systemic inequality shape the accumulation and use of cultural capital. For instance, Lareau (2002) demonstrated that middle-class Black individuals often encounter institutional mistrust and strategically utilize their cultural capital to monitor and navigate their interactions with institutional gatekeepers actively. Similarly, Khan (2011) indicated that the valued trait of "ease," illustrated by relaxed confidence in elite environments, is mainly developed among white students, thus reinforcing racial privilege. Furthermore, Rivera (2012) discovered that non-white candidates frequently face higher expectations and more stringent assessments when vying for top positions.

Cultural capital theory holds importance for both education and employment. Marcucci (2019) found that Black students are continually underrepresented in educational settings where

instructors and institutions favor distinct cultural norms and values. This lack of specific cultural capital generates structural hurdles to upward mobility. These studies demonstrate how cultural capital reflects and reinforces existing socioeconomic inequalities. Nevertheless, traditional applications of cultural capital theory have been critiqued for their deficit-based perspective, particularly in treating groups disproportionately affected by marginalization.

The Problem with Cultural Capital Theory

Bourdieu's cultural capital theory has had a significant impact on sociological research, yet it has also encountered substantial criticism, especially regarding its relevance in the varied sociocultural landscapes of the United States (Lamont & Lareau, 1988; Kingston, 2001; Pratama, 2023). Although the connection between social privilege and academic success is well-established, some scholars contend that cultural capital alone cannot wholly explain the existing disparities (DiMaggio, 1982). Kingston (2001) notes a prominent critique that emphasizes cultural capital's inconsistent definitions and usages, complicating its use as a measurable concept. Lamont and Lareau (1988) aimed to clarify this concept, presenting cultural capital as a collection of signals—such as tastes, knowledge, and behaviors—that function as exclusionary tools, gaining significance through recognition from sociocultural gatekeepers like educators and employers.

A significant critique of Bourdieu highlights his inadequate consideration of race's influence on social hierarchies, especially in the United States. Scholars suggest that his framework downplays the essential role of Whiteness in determining which types of cultural capital are esteemed and how these values sustain systemic inequalities (Archer, 2010; Richards et al., 2023; Wallace, 2018). Bourdieu's theoretical inquiries largely bypassed the issue of race, even critiquing American racial ideologies as imperialistic when viewed in a global context

(Wallace, 2018). Nevertheless, in the U.S., racial stratification is intricately woven into societal frameworks, with cultural capital frequently intersecting with proximity to Whiteness, influencing access to opportunities (Lei & Bodenhausen, 2017; Omi & Winant, 2014; Richards et al., 2023). Additionally, research shows that individuals from racialized groups possess unique forms of cultural capital that diverge from Bourdieu's Eurocentric model (Kingston, 2001; Tzanakis, 2011; Yosso, 2005).

A significant drawback of traditional cultural capital theory is its deficit-oriented view of communities disproportionately impacted by marginalization. This approach suggests that the lack of achievement among these groups stems from their inadequate fit with prevailing cultural norms (Carales & López, 2020; Collins, 2000; Fox, 2016; Reyes & Duran, 2021; Yosso, 2005). For example, Leacock (1971) noted that students from working-class families often possess linguistic styles that educational institutions undervalue, leading to poorer academic outcomes. Likewise, conversations surrounding racial inequities in education have reinforced damaging stereotypes, implying that minority children are devoid of the cultural values and behaviors needed for success or, worse, conform to a "culture of anti-intellectualism" (Carter, 2003; Dixon-Roman, 2014; Fordham & Ogbu, 1986; Kirk & Goon, 1975; Ladson-Billings, 1998). These deficit frameworks overlook the systemic biases within institutions and fail to acknowledge the unique strengths and resources communities disproportionately impacted by marginalization possess.

This dissertation addresses these critiques by expanding upon cultural capital theory by incorporating Yosso's Community Cultural Wealth framework. This strengths-based approach reinterprets the narrative, highlighting the various assets and resilience within groups

disproportionately impacted by racial and ethnic marginalization in educational and vocational settings.

The Role of Community Cultural Wealth in Empowering Communities of Color to Navigate Racism and Adversity

Community Cultural Wealth (CCW) highlights how Communities of Color utilize their knowledge, resources, skills, and strengths to succeed despite facing racism and other oppressive forces (Yosso & Burciaga, 2016). It aims to demonstrate how individuals from racial and ethnic backgrounds can draw on their assets to flourish amid bias and adversity in their environments and systems (Yosso, 2005). Yosso (2005) uses the term “capital” in the CCW framework to clarify the connection to Bourdieu’s concept of cultural capital and to address the deficit perspective often associated with misinterpretations of Bourdieu’s work. Nonetheless, some critics contend that CCW mainly emphasizes the *use value* of assets and strengths from Communities of Color (Colina Neri et al., 2021). Examples include workers using family advice to handle work disputes or seek promotions. In this context, Yosso’s (2005) concept of “capital” diverges from Bourdieu’s.

At least six types of cultural capital are included in the CCW framework: Aspirational Capital, Familial Capital, Social Capital, Linguistic Capital, Navigational Capital, and Resistant Capital. However, Yosso (2005) also recognized the possibility of additional types of capital. Additional cultural capital types that are pertinent to CCW have been found by other scholars (Reyes & Duran, 2021), including *transnational capital* (Araujo & de la Piedra, 2013), *transgressive capital* (Pennell, 2016), *caring capital* (Lawton-Stickler, 2018), and *spiritual capital* (Park et al., 2019). These new elements of cultural capital imply that CCW is a complex and dynamic idea that can be applied to numerous situations and populations. For example,

Acevedo and Solórzano (2021) have conceptualized the CCW forms of capital as protective factors when experiencing interpersonal and structured racism, such as racial microaggressions.

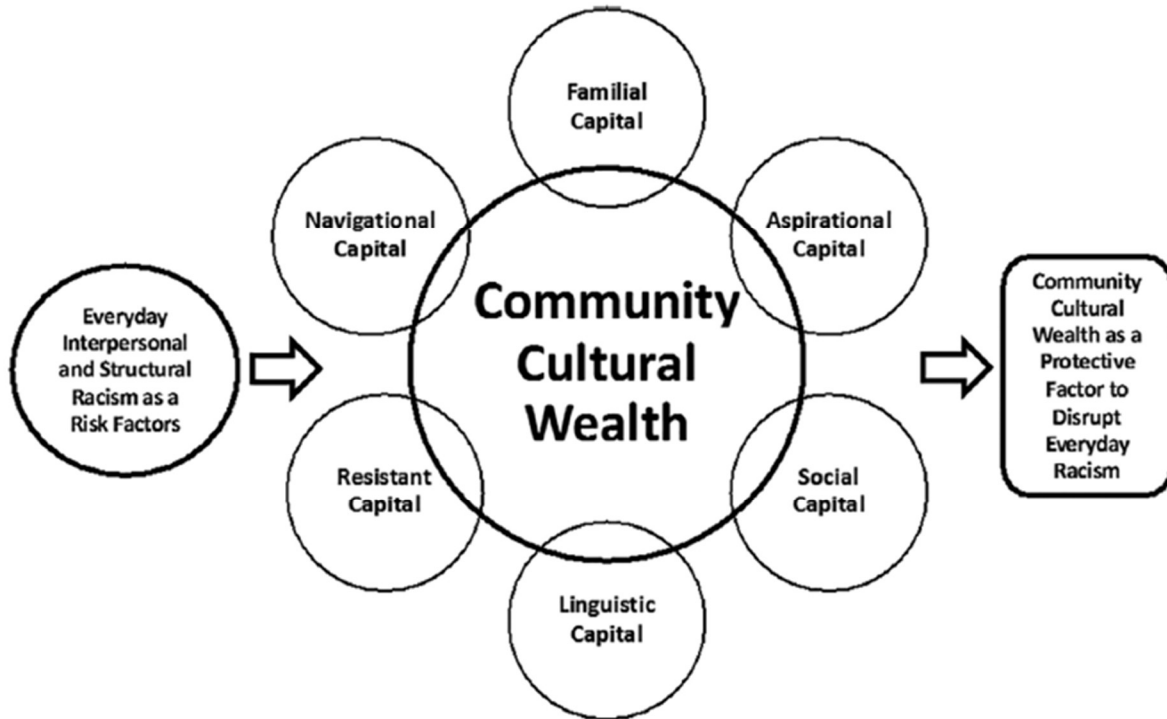


Figure 1: Acevedo and Solórzano’s (2021) Conceptualization of Community Cultural Wealth as a Protective Factor to Disrupt Everyday Racism

Racial microaggressions exemplify the reality of enduring racism in the US, highlighting how racism is commonplace and deeply embedded in societal institutions (Bell, 1993). Drawing on the research of Solórzano and Pérez Huber (2020), Acevedo and Solórzano (2021) underscored the importance of CCW in preparing students from various racial and ethnic backgrounds to adeptly navigate challenging college atmospheres, especially when confronting racial microaggressions (Yamamura et al., 2010). They contended that CCW is vital for

maintaining a person's ethnic identity, empowering them to stay genuine and resilient despite challenges (Martinez et al., 2017; Pérez, 2014; Pérez Huber, 2009).

Extending CCW from Educational to Vocational Contexts

While Acevedo and Solórzano (2021) conceptualize Community Cultural Wealth (CCW) within educational contexts to examine how students cope with racism in PK-20 environments, this study expands that framework to encompass vocational settings. We suggest that the principles of CCW can be effectively applied to working adults, focusing on the distinct challenges encountered by groups disproportionately impacted by racial and ethnic marginalization in the workplace. Like educational environments, these workplaces are influenced by racialized structures and practices that impose ongoing barriers on disproportionately impacted workers (Kyere & Fukui, 2022).

Racial and gender inequities in workplace autonomy reveal systemic differences between Black, female, and White male employees (Petrie & Roman, 2004). Emerson and Murphy (2014) explain that "social identity threat" arises from subtle biases and cues in the workplace from white colleagues and managers, leading to feelings of devaluation among historically marginalized groups. These interactions frequently show up as racial microaggressions (Sue et al., 2007), worsening workplace hostility and stress. Additionally, they play a role in discriminatory practices related to layoffs, promotions, and evaluations, highlighting the necessity for diligent protections to ensure equitable treatment. Rothwell and Crabtree (2019) point out the dissatisfaction experienced by Black women in work environments, underscoring the urgent need to tackle structural inequities and strengthen support systems to boost retention and satisfaction.

Racial discrimination persists in significantly impacting Black workers, with 25% of Black women experiencing notable workplace bias compared to their white male colleagues (Fekedulegn et al., 2019). Workers from historically marginalized racial and ethnic groups often encounter inequities in promotion, job security, and pay (Fryer et al., 2013). Research indicates higher termination rates (Couch & Fairlie, 2010) and limited promotion opportunities (Maume, 1999; Wilson & Roscigno, 2016), leading to professional stagnation and reduced representation in leadership positions. Discriminatory biases in performance assessments (Castilla, 2008) and unstable scheduling practices place additional burdens on racialized workers, highlighting the need for systemic reforms to promote fairness and stability (Storer et al., 2020). These disparities arise from the interaction of individual factors (such as job roles), institutional issues (including inadequate support systems), and labor market discrimination.

In this context, Community Cultural Wealth provides a strengths-based perspective on how workers disproportionately affected by racial and ethnic marginalization utilize their cultural resources to resist and manage racial inequities in vocational settings. The cultural wealth of these workers serves as a reservoir of assets and strengths, allowing them to survive and thrive despite challenges. For example, Aspirational Capital motivates workers to set ambitious goals and persevere despite systemic challenges. Navigational Capital equips workers with the skills to navigate complex systems, such as corporate structures and job markets. Social Capital fosters supportive networks, including mentors and professional allies, who provide guidance and opportunities for growth. Linguistic Capital enhances workers' ability to communicate across diverse linguistic and cultural contexts, an asset in the globalized economy. Familial Capital enables workers to draw strength from family values, wisdom, and support systems. Resistant Capital empowers workers to challenge and resist systemic racism and

discrimination in the workplace. Utilizing these types of cultural wealth, individuals from backgrounds disproportionately affected by racial and ethnic marginalization can lessen the adverse impacts of racial disparities while attaining personal and professional achievements. Integrating CCW into vocational settings highlights the resilience of these workers and emphasizes the necessity for fair systems that acknowledge and appreciate their input. This broader framework connects educational and vocational research, providing a potent method for comprehending and tackling workplace inequalities.

Statement of Purpose and Significance

The Community Cultural Wealth (CCW) theory suggests that Communities of Color cultivate various forms of capital to respond to systemic oppression. Nevertheless, these forms are frequently overlooked in favor of Bourdieuan ideas of cultural and social capital, which primarily highlight assets aligning with dominant Eurocentric standards. Considering the growing racial and ethnic diversity in the American workforce and the persistent challenge of racism in the U.S., it is essential to assess not only the barriers and pressures faced by workers disproportionately affected by racial and ethnic marginalization but also to recognize their resilience and the strengths they contribute to these situations.

This dissertation aims to create and analyze the *Cultural Wealth at Work Inventory* (CWWI). This self-report measure is a culturally relevant, strengths-focused approach to evaluate six dimensions of cultural wealth among U.S. workers aged 18 to 64 who face racial and ethnic marginalization. This study sheds light on how these workers utilize their assets to navigate and succeed in workplace environments, fostering more inclusive and equitable organizational practices.

This dissertation contributes four ways to the body of CCW research and literature. First, it addresses the limitations encountered in existing CCW measurements by conducting a critical quantitative study to complement qualitative studies. Research in cultural wealth and asset-based approaches for Communities of Color has predominantly remained theoretical and qualitative (Bañuelos, 2021; Denton et al., 2020; Monkman et al., 2005; Reyes & Duran, 2021; Stanton-Salazar, 2001). Instead, recent research has called for more critical quantitative studies to complement qualitative studies (Braun et al., 2017; Dika et al., 2018; Hiramori et al., 2021; Sablan, 2019) and to provide a more comprehensive understanding of the impact of CCW on various outcomes, such as academic achievement and career success (Bañuelos, 2021; Denton et al., 2020; Reyes & Duran, 2021). Additionally, existing scales that assess other types of capital, such as social capital, have often been normed with white, Eurocentric middle-class populations, neglecting the cultural context of Communities of Color.

Second, it develops a contextually relevant measurement tool to assess the cultural wealth of workers from disproportionately affected racial and ethnic groups. The unique nature of the work context necessitates research inquiry in this domain. Workplaces often mirror the broader racial dynamics present in society (Skinner-Dorkenoo et al., 2021), but unlike other settings, organizations impose certain constraints on individuals' choices of interactions. These situational constraints create a context in which professional and organizational norms must be adhered to maintain employment. By measuring protective factors within the unique context of the workplace, we can allow future vocational research to investigate the effects of these resources to gain a deeper understanding of the complexities involved and the potential implications for individuals.

Third, it examines the CWWI's factor structure and initial reliability. Furthermore, this dissertation can complement the work of vocational researchers interested in examining psychological models of racism and stress in the workplace. The development of the CWWI can contribute to vocational literature by allowing researchers to measure CCW dimensions and examine their relationships or buffering effects with relevant lines of inquiry (e.g., racial microaggressions).

Finally, researchers have emphasized the need for enhanced comprehension of how racial discrimination contributes to detrimental mental health outcomes to inform interventions and policies that address the adverse effects of racism and promote well-being (Brondolo et al., 2009; Driscoll et al., 2014). This dissertation is framed within Acevedo and Solórzano's (2021) conceptualization of community cultural wealth as a protective factor to disrupt everyday racism. This perspective emphasizes the strengths and assets of individuals from disproportionately affected racial and ethnic groups, and it is in line with the overarching goal of vocational psychology to establish equitable institutions that duly acknowledge and incentivize these unique strengths. By empowering these individuals to leverage their strengths as catalysts for challenging oppressive societal structures, we can facilitate the integration of their assets with the skills that hold value within elite circles.

Research Questions

This dissertation addresses these gaps by developing an innovative tool to measure cultural capital using Yosso's Community Cultural Wealth Model as a guiding framework. The proposed measure includes six subscales: Aspirational Capital, Linguistic Capital, Familial Capital, Social Capital, Resistant Capital, and Navigational Capital. As such, the research questions (RQs) are stated as follows:

RQ1: What is the factor structure of the items on the CWWI with a sample of U.S. workers aged 18 to 64 who belong to a racial and ethnic group historically impacted by marginalization?

RQ2: What is the internal consistency reliability of the CWWI with a sample of U.S. workers aged 18 to 64 who belong to a racial and ethnic group historically impacted by marginalization?

Summary of the Study

This correlational study employed a cross-sectional survey design, where data were collected at a single point in time to examine the relationships among the variables of interest without any manipulation (Creswell, 2013). The population for the development of the CWWI included U.S. workers aged 18 to 64 who belong to a racial and ethnic group historically impacted by marginalization. A letter from the Institutional Review Board of the University of Wisconsin at Milwaukee was provided (see Appendix A). The sample size for this study was 243 participants. Data were gathered through web-based self-report surveys (i.e., Connect by CloudResearch and Qualtrics). The instrumentation procedure followed these steps to ensure the face and content validity of the scale items: (a) clear operationalization of the construct; (b) generation of an item pool; (c) determination of the measure's format; (d) conduct of an expert review; and (e) inclusion of validity checks. The factor structure of the CWWI was established using exploratory factor analyses. Chapter 3 provides a detailed discussion of the research methodology.

Key Terms and Definitions

- **“Capital,” “assets,” and “strengths” within the framework of CCW** are employed interchangeably in this study. These terms encompass the various resources and capabilities individuals from Communities of Color have accumulated over time.
- **Communities of Color** refer to racial and ethnic groups that have historically experienced marginalization and discrimination based on their non-white racial or ethnic identities. This term encompasses a diverse range of racial and ethnic communities, including but not limited to African Americans, Latinos/Hispanics, Asian Americans, Native Americans, and individuals from other non-white racial backgrounds. The term acknowledges these communities’ shared experiences and struggles in the face of systemic racism and inequality in the US, highlighting the need for equitable representation, social justice, and empowerment.
- **Critical Race Theory in Education** – a theoretical framework that critically questions and challenges the prevailing narrative surrounding race, racism, and power, aiming to analyze and disrupt the visible effects of these socio-historical constructs within educational institutions (Delgado & Stefancic, 2023).
- **Institutional/Structural Racism** refers to “formal or informal structural mechanisms, such as policies and processes, that mediate systematically to subordinate, marginalize, and exclude non-dominant groups and mediate their experiences with racial microaggressions” (Pérez Huber & Solorzano, 2015, p. 303).
- **Quantitative Criticalism (“QuantCrit”)** is a framework that critically examines how statistical data are used in social research by applying insights from Critical Race Theory. QuantCrit challenges traditional assumptions about objectivity in quantitative work.

Quantitative Critical Race Theory is grounded on five principles: 1) the centrality of racism; 2) numbers are not neutral or objective; 3) categories in data are socially constructed and not naturally occurring; 4) voices and contextual insight from groups disproportionately affected by marginalization are essential because the data cannot speak for itself; and 5) the work must be guided by a commitment to social justice and equity (Gillborn et al., 2017).

- **Racial Microaggressions** are “(1) verbal and non-verbal assaults directed toward People of Color, often carried out in subtle, automatic or unconscious forms; (2) layered assaults, based on a Person of Color’s race, gender, class, sexuality, language, immigration status, phenotype, accent, or surname; and (3) cumulative assaults that take a psychological, physiological, and academic toll on People of Color” (Pérez Huber & Solórzano, 2015, p. 302).
- **Race** has been utilized as a social marker, historically contributing to the categorization of People of Color into positions of inequity within structures of domination, both in the United States and globally (Omi & Winant, 2014; Pérez, 2014).
- **Racism**—In his work, Solórzano (1998) delineated three fundamental components of racism: first, the existence of a perceived superiority held by one group over others; second, the possession of power by the perceived superior group to enact racist actions against others; and third, the impact of these actions on diverse racial and ethnic groups.
- **Risk Factors**—In psychology, they can be defined as characteristics or variables that increase the probability of developing a mental health disorder or engaging in suicidal thoughts and behaviors (Pérez Huber et al., 2021).

- **Protective Factors**—In psychology, protective factors refer to a “dynamic process encompassing positive adaptation within the context of significant adversity” (Luthar et al., 2000, p. 543).

Chapter 2: Review of Literature

To build a strong and reliable scale for assessing community cultural wealth (CCW) among workers disproportionately affected by racial and ethnic marginalization, it is essential to carefully review the theoretical principles and empirical uses of cultural capital. This analysis combines significant literature on human capital, Bourdieu's types of capital, and the development of the Community Cultural Wealth Model (Yosso, 2005), emphasizing the shortcomings of current frameworks and measurement methods. By pinpointing these deficiencies, this analysis sets the stage for creating a culturally attuned tool that captures the distinct strengths and experiences of workers of color in various professional settings.

What Does It Mean for Workers to Have “Capital”?

The United Nations has identified “Decent Work and Economic Growth” as one of its Sustainable Development Goals. This goal aims to create steady economic progress for everyone while ensuring productive employment and providing decent work for all (United Nations, 2022). To achieve this objective, governments encourage individuals to enhance their knowledge, skills, and resources in the job market. For decades, economists have analyzed the individual's role in the production process, distinguishing it from tangible resources such as land, machinery, and raw materials by focusing on factors like health, skills, and education (Kiker, 1966).

The concept of human capital emerged in the 1960s through the work of economists such as Theodore W. Schultz and Gary S. Becker, who formulated a theory positing that individuals can augment their economic value through the pursuit of education and workforce training (Becker, 1962). This theoretical framework was influenced by the economic and social dynamics of the United States during that era, which experienced several transformational changes. One of

these changes was the Cold War rivalry with the Soviet Union, which intensified after the launch of Sputnik in 1957 and led to increased federal funding for education in science and technology to enhance U.S. competitiveness (Sweetland, 1996). Another change was the War on Poverty, initiated by President Lyndon B. Johnson in 1964, aimed at reducing poverty and inequality through human capital investment strategies in education and other social programs (Bitler & Karoly, 2015; Haveman et al., 2015). A third change was the Civil Rights Movement of the 1950s and 1960s, which demanded equal educational opportunities and challenged racial discrimination and segregation (Hall, 2005; Sweetland, 1996). The theory's appeal stems from its alignment with a capitalist ideology, suggesting that individuals can attain capitalist status by investing in their knowledge and skills. This perspective counters the idea of an inherent conflict between capitalists and workers by positing that all individuals have the potential to overcome such divisions (Bowles & Gintis, 1975).

In contemporary discourse, the term “human capital” is widely used to describe “individuals’ knowledge, skills, and capabilities that generate economic output” (Martin, 2005, p. 1013). For example, organizations that provide health benefits to employees invest in human capital by improving physical well-being and productivity. Similarly, individuals who pursue higher education are making long-term investments in their human capital, which can enhance their employment prospects and earning potential.

Bourdieu’s Forms of Capital

While human capital theory emphasizes personal investments in education and skills, it often overlooks the structural and social factors that shape economic outcomes. Bourdieu’s theory of capital fills this gap by presenting a multidimensional framework that examines the interplay of economic, social, and cultural resources in reinforcing social hierarchies. During the

1970s and 1980s, significant social changes occurred in American society, including the conclusion of the Vietnam War and advancements in civil rights and women's movements (Edmunds & Turner, 2005; Hall, 2005; Sweetland, 1996). Scholars across various disciplines, from sociology to economics, began exploring the impacts of social structures, relationships, and society on economic returns and human capital development during this period (Darity, 2008). Sociological scholars like Coleman and Loury have thoroughly examined the concept of social capital, but it was Pierre Bourdieu who refined this idea into a theory that remains widely cited in contemporary discussions (Ayling, 2019; Bourdieu, 1984; Darity, 2008; Dubos, 2017; Farr, 2004; Halpern, 2005; Häuberer, 2011).

Bourdieu, a French sociologist, aimed to enhance our understanding of the ever-evolving relationship between people and society, particularly regarding social inequality (Edgerton & Roberts, 2014). He introduced the theory of practice within his theoretical framework, which explains how intentional actions and reflective practices shape and sustain societal institutions (Bourdieu, 1977). From this perspective, individuals continually create and recreate society and its hierarchical structures (Ayling, 2019; Bourdieu, 1973; Häuberer, 2011). In Bourdieu's theory of practice, he identifies three core concepts: "field," "habitus," and "capital" (Bourdieu, 1990). The concept of "field" within Bourdieu's framework refers to the existing social structure represented in social space, where various individuals occupy these positions temporarily and independently (Bourdieu, 1977, 1990). Numerous variations exist across different fields, each defined by unique regulatory principles that shape the field's agenda (Bourdieu, 1990). Examples include medicine, law, and education, comprising authorities, structures, organizations, and activities (Bourdieu, 1977, 1990). Interactions and dynamics emerge within the concept of the field, providing the contextual backdrop for social exchanges and relationships (Shusterman,

1999). The field acts as a framework that governs individuals' behaviors, strategies, and positions within its realm, influencing their actions and the distribution of resources, power, and status (Bourdieu, 1977, 1990; Shusterman, 1999). The concept of "habitus" embodies a combination of psychological disposition and physical skills shaped by an individual's past experiences, traditions, rituals, and values (Bourdieu, 1977, 1990; Shusterman, 1999).

Individuals develop their habitus through imitation and repetition, incorporating mannerisms and skills (Shusterman, 1999). Finally, the concept of "capital" is the focal point of our discussion.

Capital encompasses the resources individuals or groups possess, including economic wealth and other assets that contribute to social status (Bourdieu, 1977, 1986, 1990). It extends beyond material possessions to include various resources within social contexts, such as social connections and cultural competencies (Bourdieu, 1977, 1986; Shusterman, 1999). Bourdieu identified three forms of capital (i.e., economic, social, and cultural) that affect a person's positioning and opportunities in society (Bourdieu, 1986).

Economic capital consists of tangible financial resources such as wealth, income, and property. It refers to the economic assets that individuals or groups hold, which can be utilized to gain an advantage or secure higher societal positions (Bourdieu, 1984, 1986). *Social capital* is more nuanced and refers to the "aggregate of the actual or potential resources which are linked to a possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition...which provides each of its members with the backing of the collectively owned capital" (Bourdieu, 1986, p. 21). Leveraging the collective resources of a social network can provide access to valuable information, including job openings, industry trends, and company requirements, which can lead to improved earning potential and productivity. For example, receiving job notifications from a friend, gaining crucial company

insights from a colleague, or getting a recommendation from an existing employee all demonstrate the beneficial potential of using collectively held information to enhance personal earnings and boost company productivity. Bourdieu's definition highlights the individual advantages of group participation (Portes, 1998). *Cultural capital*, intricately linked to the concept of 'habitus,' includes symbols, preferences, knowledge, and acquired skills that society values and that individuals gain over time (Bourdieu, 1986). It can be internalized through valued skills, expressed through possessions such as artwork or books, or institutionalized through titles and degrees (Ayling, 2019; Bourdieu, 1986). Bourdieu highlighted the family and the education system as key influencers of social and cultural capital, as individuals from higher social classes can provide their children with resources for academic success and attaining privilege and power (Edgerton & Roberts, 2014). The interconnected nature of economic, social, and cultural capital becomes clear when we consider how economic capital facilitates access to quality education and the early introduction of cultural capital to children (Edgerton & Roberts, 2014).

According to Bourdieu, individuals in society utilize various forms of capital to gain advantage, engaging in a continuous struggle for positions within the hierarchical structure, whether as privileged or disadvantaged (Ayling, 2019; Bourdieu, 1986; Shusterman, 1999). These positions have historical foundations in capitalism and colonialism, as capital acquired by previous generations can be passed down, perpetuating advantages or disadvantages (Edgerton & Roberts, 2014; Kraaykamp & van Eijck, 2010). Importantly, Bourdieu emphasizes that social positioning and capital are not only relative to individuals or groups but are entrenched within the societal hierarchy. Thus, the values and characteristics associated with various positions

reflect the behaviors and attributes of those who occupy them (Ayling, 2019; Bourdieu, 1986; Shusterman, 1999).

The Problem with Cultural Capital Theory

Bourdieu's work has attracted the interest of American sociologists, particularly those focused on social stratification and educational inequities (Lamont & Lareau, 1988; Kingston, 2001; Pratama, 2023). The connection between social privilege and academic success is widely recognized, although some contend that Bourdieu's theories on cultural capital offer an incomplete explanation (DiMaggio, 1982). Research indicates that while cultural capital contributes to academic achievement to some degree, it accounts for only a tiny portion of the observed variance. Critiquing the inconsistent usage and definition of cultural capital, Kingston (2001) references Lamont and Lareau (1988) and underscores the difficulty of studying it as a mark of distinction. To provide a more concrete definition, Lamont and Lareau (1988) stress that cultural capital consists of signals that function as exclusionary tools, gaining value by acknowledging key sociocultural gatekeepers, such as academic officials (Kingston, 2001).

Despite its contributions, Bourdieu's framework has faced criticism for its Eurocentric bias and for failing to recognize the cultural assets of Communities of Color. A notable concern in Bourdieu's work in the sociology of education research in the United States is the unacknowledged nature of Whiteness within his notion of cultural capital, leading to race being seen as a tangential concern rather than a fundamental framework that shapes social organization and dynamics (Archer, 2010; Richards et al., 2023; Wallace, 2018). In his theoretical work, Bourdieu did not directly address the issue of race and even criticized American racial ideologies as imperialistic when applied to sociology outside the United States (Wallace, 2018). Nevertheless, the undeniable reality of race in the United States requires an acknowledgment that

the social stratification lines outlined by Bourdieu often correspond with proximity to people of color (Lei & Bodenhausen, 2017; Omi & Winant, 2014; Richards et al., 2023). Regardless, research has shown that individuals from racialized backgrounds possess forms of cultural capital that differ from Bourdieu’s conceptual framework (Kingston, 2001; Tzanakis, 2011; Yosso, 2005).

Scholars have voiced concerns regarding the application of Bourdieu’s theories, which can lead to “deficit-based” frameworks when analyzing historically marginalized communities, particularly those of color, implying that their lack of success stems solely from a shortfall in the necessary capital (Carales & López, 2020; Collins, 2000; Fox, 2016; Reyes & Duran, 2021; Yosso, 2005). For example, Leacock (1971) posited that students from working-class backgrounds exhibited linguistic styles that educational institutions undervalued, resulting in their underachievement. Similar theories have been proposed by others addressing racial disparities in American education, suggesting that minority children lack the cultural values and behaviors essential for success or even possess a culture of anti-intellectualism (Carter, 2003; Dixon-Roman, 2014; Fordham & Ogbu, 1986; Kirk & Goon, 1975; Ladson-Billings, 1998). These limitations highlight the necessity for alternative frameworks, such as Yosso’s Community Cultural Wealth Model, which emphasizes the strengths and resilience of Communities of Color.

The Development of the Community Cultural Wealth Model

Tara Yosso’s (2005) Community Cultural Wealth Model represents a change in thinking in cultural capital theory. Drawing on Critical Race Theory (CRT) in Education, Yosso challenged deficit-based interpretations of Bourdieu’s capital theory applied to Communities of Color (Tichavakunda, 2019; Yosso, 2005). She challenged existing cultural capital frameworks that characterized behaviors, symbols, attitudes, and values held by those considered “upper

class” as legitimate and argued against the idea that people and cultures lacking those indicators were somehow deficient (Yosso, 2005). She introduced a sociocultural capital approach that legitimizes the often-overlooked lived experiences of Communities of Color and legitimizes their assets, experiences, values, histories, and resources.

Yosso (2005) deliberately adopted a framework informed by CRT in Education to conceptualize cultural capital, shifting the focus from the experiences of the “dominant” culture to those of Communities of Color. This shift highlights perspectives that are typically historically marginalized within traditional capital theories. Emerging in the 1980s, Critical Race Theory (CRT) originated from the groundbreaking work of lawyers, activists, and legal scholars who aimed to provide a race-focused lens for post-Civil Rights legal scholarship (Bell, 1995; Matsuda et al., 1993; Crenshaw et al., 1995; Delgado & Stefancic, 2023). Its inception challenged established legal analyses that perpetuated flawed interpretations of legal doctrine, contributing to the ongoing inequity experienced by Communities of Color.

In the mid-1990s, education scholars recognized the potential of CRT and began integrating it into their interdisciplinary research. Pioneers like Gloria Ladson-Billings and William Tate (1995) and Daniel Solórzano (1997) led the way, forging a path for CRT analyses in the field of education (Ladson-Billings, 1998). Although CRT encompasses diverse perspectives and interpretations among its advocates, Yosso (2005) employed Solórzano’s (1997; 1998) framework of CRT in education, which provided five tenets that should inform research, theory, policy, pedagogy, and curriculum:

1. *The intercentricity of race and racism with other forms of subordination.* CRT’s first premise is that race and racism are conscious and unconscious permanent aspects of American life (Bell, 1993; Ladson-Billings, 1998; Ladson-Billings & Tate, 1995;

- Tate, 1997). CRT recognizes the complex nature of individuals' identities, which are multifaceted, interconnected, and sometimes conflicting, thus requiring consideration of multiple perspectives to understand them fully. Critical Race Theorists maintain that racism includes various dimensions, such as (a) macro and micro aspects, (b) institutional and individual manifestations, (c) conscious and unconscious elements, and (d) cumulative impacts on both individuals and groups (Love, 2018).
2. *The challenge to the dominant ideology.* CRT serves as a powerful critique that challenges the concept of White privilege and questions the alleged objectivity, meritocracy, colorblindness, race neutrality, and equal opportunity claimed by educational institutions. By questioning the idea of “neutral” research and “objective” researchers, CRT highlights the limitations of deficit-informed research that overlooks and distorts the epistemologies of People of Color, silencing their voices (Delgado Bernal, 1998; Ladson-Billings, 2000).
 3. *The commitment to social justice.* By adopting a social justice research agenda, CRT reveals the underlying “interest-convergence” (Bell, 1995) of educational civil rights advancements. It aims to eradicate racism, sexism, and poverty while simultaneously empowering People of Color and other groups disproportionately impacted by racial and ethnic marginalization (Freire, 1970, 1974; Solórzano & Delgado Bernal, 2001).
 4. *The centrality of experiential knowledge.* CRT recognizes and appreciates the legitimacy, relevance, and importance of People of Color's experiential knowledge, viewing it as essential for understanding, analyzing, and teaching about racial subordination (Delgado Bernal, 2002).

5. *The utilization of interdisciplinary approaches.* CRT focuses on analyzing racism in both historical and contemporary contexts, acknowledging the persistent nature of racial oppression and its effects on current realities by drawing from various fields (e.g., history, law, psychology, sociology, etc.) (Solórzano & Yosso, 2001a; Love, 2018).

Drawing on CRT in Education as her theoretical foundation, Yosso (2005) argues that Communities of Color, in their resistance against various forms of oppression, cultivate a diverse range of knowledge, skills, resources, and assets derived from their unique histories and lived experiences. These collective elements constitute a distinct form of wealth frequently overlooked or undervalued within the framework of Bourdieuan conceptions of capital. This cultural wealth encompasses six fundamental forms, each offering unique advantages and resources: (1) aspirational capital, which refers to a person's ability to foster resilience and optimism in the face of real or perceived obstacles; (2) linguistic capital, acquired through multilingualism and proficiency in various linguistic styles; (3) familial capital, which includes a sense of heritage, cultural ties, and belonging within traditional and social families; (4) social capital, allowing individuals to leverage their networks to access skills, opportunities, and resources; (5) navigational capital, which refers to the ability of people of color to move through spaces that may be unwelcoming or exclusionary; and (6) resistant capital, developed through knowledge, skills, and oppositional behaviors that challenge inequality, racism, and subordination (Yosso, 2005). This multifaceted array of capital emphasizes the richness and resilience of the community, providing invaluable resources for navigating and challenging systemic barriers while promoting individual and collective empowerment.

Several researchers have utilized the CCW framework to extend their investigations beyond Yosso's initial emphasis on Students of Color in educational institutions. For instance, Fernández et al. (2020) employed CCW as a framework to examine the transformative efforts of Latina women—specifically those who identify as 'muxeres'—in enhancing community health equity. Their research demonstrated that these muxeres harnessed a rich array of capital, including navigational, linguistic, social, and resistant forms. These muxeres effectively organized and mobilized their communities, leveraging their diverse resources and cultivating a collective drive for meaningful change. This study illustrates the power of cultural capital in empowering historically marginalized groups and underscores Latina women's essential role in advancing community well-being and social transformation. Martinez et al. (2017) adopted CCW as a lens to investigate how assistant professors of color draw upon various forms of capital (navigational, aspirational, social, resistant, linguistic, familial) to confront racism and marginalization in academia. Using CCW, Martinez et al. (2017) highlighted how assistant professors of color leveraged positive cultural assets to maintain authenticity, navigate obstacles, and promote accessibility. They underscored the significance of staying true to oneself, persevering with integrity, and advocating for quality mentorship. These individuals strategically engaged in service while avoiding cultural taxation and tokenism, empowering themselves to make meaningful contributions to their fields and foster positive change within the academic community (Martinez et al., 2017).

Bromer et al. (2023) conducted a study on family childcare professionals of color and their approaches to early care and education and the children and families in their programs. According to the study, family childcare providers emphasized various forms of cultural wealth, such as aspirational, familial, navigational, and resistant, to counteract the negative stereotypes

surrounding their profession. They aimed to amplify their voices and challenge the stereotype that home-based childcare is merely babysitting (Bromer et al., 2023). In a separate study, Gray-Nicolas and colleagues (2022) explored the complex path Black women assistant professors navigate as they work toward tenure, acknowledging the importance of their relationships with students, communities, research, teaching, and service. By utilizing Black feminist thought and community cultural wealth as conceptual and theoretical frameworks, the study illuminated how Black women assistant professors employ strategies that transcend traditional notions of success in academia. The findings highlighted the importance of building dynamic support networks and leveraging their collective wisdom, resources, and resilience to address the various forms of inequality they encounter in the academic field.

Although the concept of CCW has been used to examine the cultural wealth of students as young as third graders (DeNicolo et al., 2015), the existing body of CCW literature reviewed above provides a valuable foundation for expanding our understanding of CCW beyond its application to students and into adult populations. This literature enables us to explore how CCW manifests and influences the experiences and resources of individuals in various contexts beyond the educational setting. By examining CCW within adult populations, we can gain insight into the diverse assets, strengths, and forms of capital that individuals from disproportionately affected backgrounds bring to their professional and personal lives.

“QuantCrit” and Community Cultural Wealth Measurements

Numerous measures have been developed or adapted to assess Bourdieuan concepts of capital, which include economic status, ownership of cultural items like books, and parental education (Fismen et al., 2012; Kraaykamp & van Eijck, 2010; Pishghadam et al., 2011; Sieben & Lechner, 2019; Špaček, 2017). However, few measurement scales or tools based on Yosso’s

(2005) framework have been developed. This scarcity can partly be attributed to CCW's strong ideological basis in CRT, which prioritizes the perspectives and experiences of historically minoritized individuals, employing methods such as counter-narratives and counter-storytelling (Ladson-Billings & Tate, 1995; Tate, 1997; Ladson-Billings, 1998; Solórzano & Yosso, 2001b). This emphasis on centering minoritized voices naturally aligns with qualitative lines of inquiry, allowing for the direct and authentic expression of these stories (Bañuelos, 2021).

The use of quantitative methodologies in critical work has often been regarded as inadequate, primarily due to their emphasis on establishing causal relationships, neutrality, and objectivity—a framework that can present challenges when exploring the complex nature of race and the profound effects of its social construction (Carbado & Roithmayr, 2014). This is not to say that quantitative methodologies do not have a place in critical research. In response to address the limitations of quantitative methodologies in critical work, some scholars have embraced the concepts of “QuantCrit,” “critical-quantitative,” or “quantitative criticalism” (Baez, 2007; Covarrubias, 2011; Garcia et al., 2017; Gillborn et al., 2017; Stage, 2007; Stage & Wells, 2014). This approach entails a deliberate and conscious utilization of quantitative methods to advance the principles and perspectives of critical work. Also, it is intentionally used to center the assets of groups disproportionately impacted by marginalization, address disparities, challenge deficit-based ideologies, and critically interpret quantitative findings to unveil the underlying assumptions and biases inherent within the data. At the heart of these explorations is a critical theory-informed perspective that “the numbers never ‘speak for themselves’ and that the numbers are given voice by the theoretical underpinnings upon which they rest” (Covarrubias & Velez, 2013, p. 270). Quantitative data can generate meaningful and impactful outcomes through deliberate interpretation and analysis, challenge assumptions, and address social issues.

Despite the potential of QuantCrit, few instruments have been developed to operationalize Yosso's (2005) CCW framework. Among the notable exceptions is Sablan's (2019) nondominant cultural capital scales, which emphasize the strengths of Communities of Color rather than their weaknesses. Sablan (2019) developed a measurement framework based on Yosso's (2005) conceptual model, including four distinct scales, each containing seven or eight items: aspirational capital, familial capital, navigational capital, and resistant capital. Her scales were explicitly designed for use among students attending academic institutions that serve Asian American, Native American, and Pacific Islander communities, with many respondents identifying with these racial or ethnic backgrounds. Additionally, the survey questions primarily focused on educational achievement (Sablan, 2019). Sablan (2019) employed a careful approach to survey design by incorporating content validity testing, expert reviews, a pilot test, cognitive interviews, measure refinement and exploratory factor analysis.

Other attempts to measure CCW have been less comprehensive or lack the intentional critical framing of QuantCrit. For example, Dika et al. (2018) developed a nine-item scale to assess the cultural wealth of engineering students from minoritized racial and ethnic backgrounds. While the scale included four items on social capital, it featured only one item each for the remaining five CCW categories. The study found that peer-related social capital, aspirational capital, and familial capital were particularly significant for students, with familial and on-campus social capital exerting a more substantial influence on Black and Latino students compared to their White counterparts (Dika et al., 2018). However, the limited scope of the measure and its focus on a single academic discipline restrict its broader applicability.

Similarly, Braun et al. (2017) used CCW as a conceptual framework to develop an instrument for evaluating mentoring efficacy among deaf STEM students. They employed a

rigorous survey development process that included incorporating items from validated measures, conducting a focus group with experts, piloting the survey with a sample of sixty-six respondents, refining the survey through cognitive interviews with student volunteers, and utilizing factor analysis for further validation (Braun et al., 2017). Their findings underscored the importance of community cultural wealth, identifying a factor termed “deaf community capital.” While their measure differed from Yosso’s (2005) constructs by excluding familial and linguistic capital, they included academic, discipline, and community capital (Braun et al., 2017). This adaptation, although innovative, restricts the measure’s alignment with the full CCW model.

Hiramori et al. (2021) also contributed to measuring CCW by developing an 81-item instrument to quantify and clarify the concept. In this development study, the researchers conducted a pilot survey with 660 students affiliated with the Pacific Northwest Louis Stokes Alliances for Minority Participation in STEM, which allowed them to perform a factor analysis (Hiramori et al., 2021). Their findings revealed significant modifications to the CCW model, including the identification of three sub-domains within aspirational capital (external, internal, and resistant), the integration of navigational capital with social capital, and the acknowledgment of two distinct sub-dimensions within linguistic capital (mono- and multi-lingual) (Hiramori et al., 2021). Despite its comprehensiveness, the measure’s focus on STEM students and its deviation from Yosso’s constructs limit its generalizability to other populations and contexts.

Methodological Limitations of Existing CCW Measures

Although these studies represent significant progress in quantifying CCW, they also have limitations. Both Dika et al. (2018) and Hiramori et al. (2021) did not follow the recommended practices for survey development outlined by DeVellis and Thorpe (2021), raising questions about the validity and reliability of their findings. While methodologically robust, the analyses

conducted by Sablan (2019) and Braun et al. (2017) did not fully implement Yosso's (2005) framework. Additionally, the samples used in these studies are restricted to educational contexts, primarily consisting of undergraduate students. For instance, Sablan's (2019) measure focused on Asian American, Native American, and Pacific Islander students, while Braun et al. (2017) concentrated on deaf STEM students. Additionally, Dika et al. (2018) targeted a sample that more accurately represents the engineering student population; therefore, most participants identified as Caucasian or White (74%). While Hiramori et al. (2021) included a higher percentage of people of color in their sample, it was still primarily composed of White-identified STEM students (58.4% identified as White, with 83% enrolled in STEM fields).

These gaps highlight the need for a culturally responsive tool that fully implements Yosso's (2005) CCW framework and is tailored to the experiences of workers from Communities of Color. By addressing these limitations, this study seeks to develop a comprehensive measure that acknowledges the diverse assets and strengths of Communities of Color in the workplace.

Chapter 3: Research Design and Methods

Chapter 3 presents the research methods utilized to develop the Cultural Wealth at Work Inventory (CWWI) and examine its psychometric properties with a sample of U.S. workers aged 18 to 64 who face racial and ethnic marginalization. The methods will be discussed in the following sections.

Study design

The Cultural Wealth at Work Inventory will be developed according to established scale development (Boateng et al., 2018; Clark & Watson, 1995; Dawis, 1987; DeVellis & Thorpe, 2021) and validation procedures (Boateng et al., 2018; Meyers et al., 2013, 2017; Reise et al., 2000; Worthington & Whittaker, 2005). The methods employed in each study are described below.

The steps for constructing the Cultural Wealth at Work Inventory are detailed below, following the guidelines of DeVellis & Thorpe (2021) and other researchers in scale development. Figure 2 illustrates a broad overview of methodological procedures.

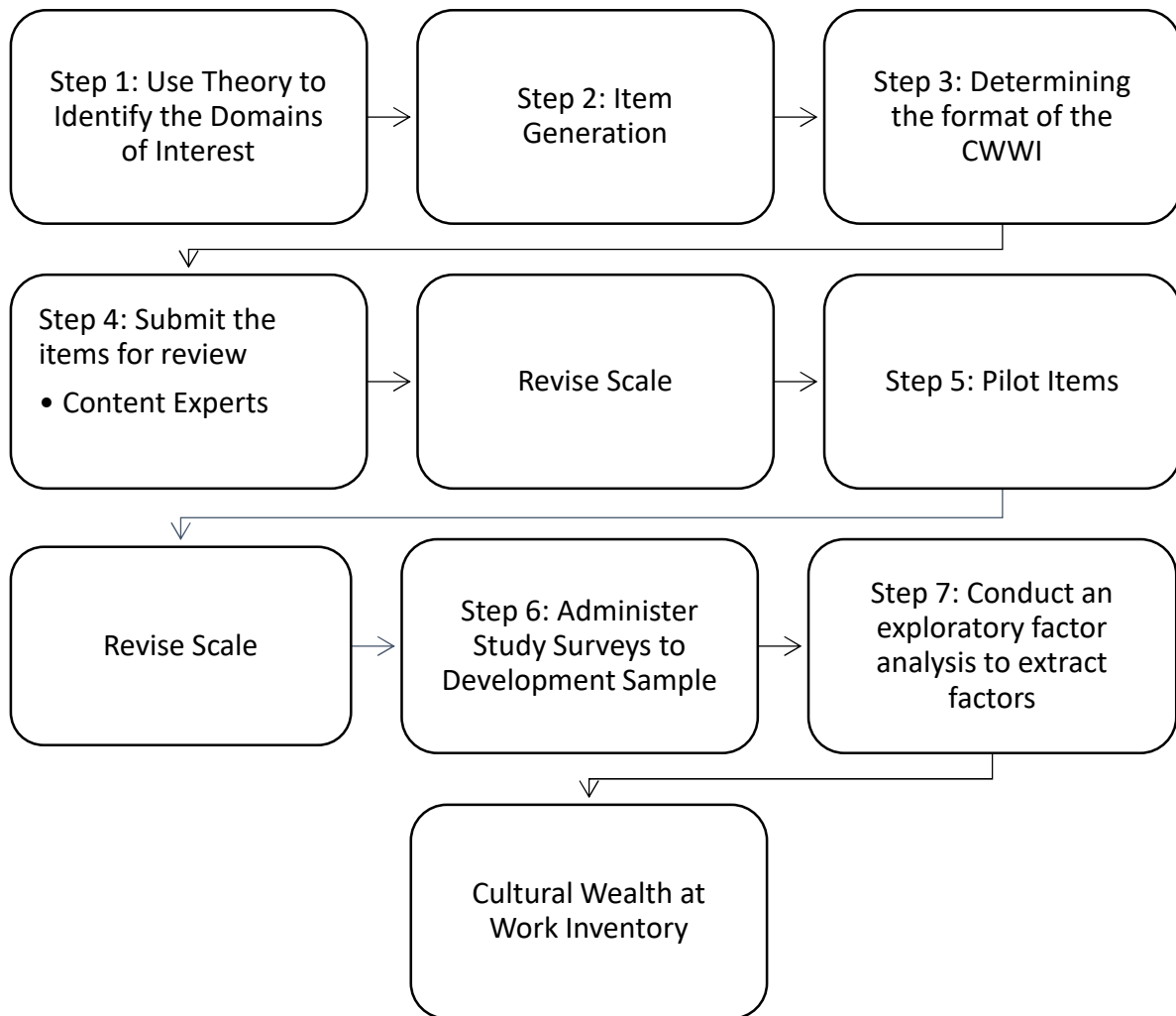


Figure 2: Methodological procedures of Cultural Wealth at Work Inventory development and validation.

Use Theory to Identify the Domains of Interest

Boateng et al. (2018) and DeVellis and Thorpe (2021) highlight the importance of consulting theory at the beginning of the scale development process to clarify the constructs of interest. Examining relevant theory serves as a guide for the subsequent steps of scale development and can also aid in determining the specificity or generalizability of the final scale. Additionally, exploring theory related to the latent constructs of interest can help identify

existing measurement tools that assess similar constructs, preventing researchers from creating redundant scales.

The community cultural wealth model is the primary construct of interest for the *Cultural Wealth at Work Inventory*. An operational definition of this construct and a review of the theory from which it was derived are provided in Chapter Two. Additionally, this study adopted a QuantCrit framework (Baez, 2007; Covarrubias, 2011; Garcia et al., 2017; Gillborn et al., 2017; Stage, 2007; Stage & Wells, 2014) to deliberately center the voices and assets of workers disproportionately affected by racial and ethnic marginalization. In brief, the Cultural Wealth at Work Inventory is an alternative measure of an individual's access to various forms of cultural capital beyond Bourdieu's traditional forms of economic and educational capital, including aspirational, linguistic, familial, social, navigational, and resistance capital. This framing will inform the structure of the survey, the interpretation of items, and the use of demographic categories. Instead of using quantitative methods to merely describe inequality, the hypothesized scales will leverage them to affirm strengths within groups disproportionately affected by racial and ethnic marginalization. The hypothesized scales of the proposed community cultural wealth measure and their conceptual definitions are described below:

1. *Aspirational capital* “refers to the ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers” (Yosso, 2005).
2. *Linguistic capital* refers to the skills gained through the ability to communicate in multiple languages, styles, or forms of expression (Yosso, 2005).
3. *Familial capital* refers to the knowledge, sense of history, intuition, values, and lessons of caring and coping that are passed through kinship networks and help foster collective consciousness (Yosso, 2005).

4. *Social capital* encompasses the networks of people and community resources that provide emotional support, information, and financial or other material assistance (Yosso, 2005).
5. *Navigational capital* is the ability to navigate spaces and institutions that were “not created with Communities of Color in mind” (Yosso, 2005, p. 80).
6. *Resistant capital* refers to the knowledge and skills gained through identifying oppressive structures and being motivated to challenge inequality, racism, and subordination (Yosso, 2005).

Item Generation

After clearly defining the latent constructs of interest, the next step was to develop a comprehensive pool of potential items for the final scale. The goal of this stage was to “sample systematically all content that is potentially relevant to the target construct” (Clark & Watson, 1995, p. 311). The items were based on the Community Cultural Wealth (CCW) model (Yosso, 2005), which served as the theoretical foundation for the scale. DeVellis and Thorpe (2021) stressed the significance of creativity during this phase to maximize the variety of content related to the latent constructs. At this point, the emphasis was on capturing the range of each construct rather than fine-tuning the wording of individual items.

While DeVellis and Thorpe (2021) do not specify a recommended size for the initial item pool, other scholars suggest it should be at least twice the size of the desired final scale (Boateng, 2018; Kline, 2007; Weiner et al., 2013). A larger pool allows for greater selectivity during the refinement process, ensuring that the final scale consists of conceptually robust and psychometrically sound items. When generating items, it is crucial to find a balance between redundancy and uniqueness. DeVellis and Thorpe (2021) differentiate between useful

redundancy and useless redundancy. Useful redundancy occurs when items convey similar ideas using distinctly different wording, making these items syntactically different. This allows for varied responses that more accurately reflect the underlying construct. In contrast, useless redundancy arises when items are both syntactically and conceptually similar, which can lead to response bias and inflated reliability estimates. In summary, DeVellis and Thorpe (2021) advise researchers against eliminating similar content items unless they are similar in syntax.

The items selected for the sample were derived from a thorough literature review and aimed at capturing distinct components of CCW as conceptualized by previous scholars. The items created by the author are grounded in the definitions of the scale, which were established after a comprehensive review of the literature. Since this dissertation seeks to measure the CCW resources of the working adult population, which spans a wide age range of 18 to 64, careful consideration was given to the language of the items to ensure their applicability across this age spectrum. For instance, the expression of familial capital may vary among the age groups of the respondents. Younger individuals in early adulthood (e.g., 18-25) may still heavily rely on their families for support, guidance, and financial assistance, while older individuals in middle adulthood (e.g., 35-55) may have established their own families and experience shifts in their family roles, such as becoming parents of adolescents, marital partners, or caregivers for aging parents. However, this does not imply that the measure of familial capital in the CWWI is invalid or unreliable for this diverse age group. Rather, it suggests that the items should reflect the general aspects of familial capital common across different life stages, such as emotional support, shared knowledge and values, and the utilization of these networks. These aspects are crucial for the well-being and resilience of working adults, irrespective of their age or family circumstances.

The items were designed with careful attention to reading levels, targeting a readability range of 6th to 8th grade to ensure accessibility for a broad audience and reduce potential comprehension challenges. Additionally, the language used in the items was reviewed to guarantee racial neutrality and applicability to all racial groups. Any useless, redundant items were removed from the final selection.

Determine the Format of the Proposed Measure

The scale format should be selected based on the nature of the latent construct being measured. According to DeVellis and Thorpe (2021), there are diverse options for scale response formats, including simple dichotomous responses (e.g., “yes/no,” “true/false,” etc.), checklists, and more complex response categories. The most used format is the Likert-type scale, which prompts respondents to indicate their level of agreement or endorsement for each item.

The proposed CWWI scales consisted of statement items to which respondents replied using a 6-point Likert-type scale (i.e., 1=Not at all like me, 2=Very slightly like me, 3=Slightly like me, 4=Moderately like me, 5=Very much like me, 6=Exactly like me). Careful consideration of psychometric properties, statistical requirements, and practical implications has guided the choice of scale for this research project. We chose a 6-point Likert-type scale because it offers adequate discrimination, ease of use, statistical relevance, comparability with existing research, and practical applicability in specific contexts. Higher scores indicate a stronger endorsement of the specific construct (i.e., scale) to which the item belongs.

Submit the Items for Expert Review

To ensure the instrument’s content validity, we consulted several experts (Appendix B) in the relevant field to review the potential scale items. This process, endorsed by Boateng et al. (2018) and DeVellis and Thorpe (2021), confirmed that the items are directly related to the

measured construct, are clear and concise, and are unidimensional. The expert feedback may also suggest additional methods for operationalizing the latent constructs that have not yet been considered. Following the guidelines of Boateng et al. (2018), we utilized expert judgments to enhance the content validity of the generated items.

Evaluation by Experts. In alignment with QuantCrit, email requests for feedback on the pool of potential CWWI items were sent to author-identified content experts in Community Cultural Wealth, Critical Race Theory, vocational psychology, and scale construction. A reminder email was sent approximately two weeks after the initial invitation. Content experts were presented with all the items after they accepted the invitation. To ensure the scale's content validity, a panel of experts in the relevant field was recruited to review the scale instructions and potential items. The reviewers were asked to assess the items for clarity, content, and cultural appropriateness to determine how to revise, delete, and add content areas. Written feedback was solicited on specific items, scale constructs, response formats, and the overall scale. Specifically, the reviewers were asked to provide feedback on how well the subscales and their items represent each construct of the CCW. Additionally, to stay within the QuantCrit framework, expert reviewers' feedback was not solely used for improving psychometric clarity, but also for ensuring that the items reflected the lived experiences of workers from groups disproportionately affected by racial and ethnic marginalization without reinforcing essentialist or deficit-based narratives. For instance, items were evaluated for their potential to overgeneralize experiences, racial homogeneity, or explicitly/implicitly favor dominant cultural norms. All expert feedback was compiled and thoroughly reviewed, leading to appropriate scale revisions based on DeVellis and Thorpe's recommendations (2021).

Pilot the Items

Although DeVellis and Thorpe (2021) did not explicitly recommend this step, administering the survey to a small sample allows for a final quality check (Boateng et al., 2018; Clark & Watson, 1995). Clark and Watson (1995) remind us that while this step may easily be overlooked, it is crucial to refine the scale items further for ambiguity, missing questions, clarity, and redundancy. When considering sample sizes for pilot studies aimed at developing initial measures, Johanson and Brooks (2009) conducted a cost-benefit analysis to determine the point at which increasing the sample size no longer yielded significant improvements. Their research revealed that within the sample ranges of 24-30 and 30-36, further increases in sample size did not reduce the confidence interval, suggesting that larger samples would not necessarily enhance accuracy (Johanson & Brooks, 2009). Considering these findings, the author of this study recruited 30 participants from a pool of employed individuals representing various racial and ethnic groups on Connect by CloudResearch. To incentivize participation, respondents received compensation of \$1.80 for completing the survey.

This survey was administered to a small sample of individuals from the intended audience as a pretest to identify any detectable errors. Participants for the pilot survey were recruited from Connect by CloudResearch and provided a link to access the survey hosted on Qualtrics. Respondents were presented with study information and instructions before proceeding with the demographic questionnaire and the survey. The scale scores and demographic data collected during the pilot testing were discarded and not used in the final analysis. The primary objective of this pilot phase is to identify any potential errors, ambiguities, or redundancies in the survey items. The scale was refined and enhanced by addressing these issues before moving on to the primary data collection phase. This phase served as an

opportunity to test the electronic survey and its distribution method, which would be utilized for future large-scale data collection endeavors.

Administer Study Surveys to Development Sample

Once the final set of items was prepared, it was administered to a large sample, as DeVellis and Thorpe (2021) recommended. Clark and Watson (1995) suggest that it is advisable to test potential scale items on a heterogeneous sample that reflects and encompasses the full spectrum of the population of focus. A larger and representative sample size is considered optimal for scale development due to the lower measurement errors and more stable factor loadings, replicable factors, and generalizable results to the true population structure that a larger sample size item ratio implies (MacCallum et al., 1999) and reduce participant-sourced scale variance (Tabachnick & Fidell, 2001). However, blanket guidelines for the number of respondents required to establish scale validity are misleading since no two scales have the same items, factors, or respondent characteristics that interact to influence the required sample size (Comrey, 1988; MacCallum & Tucker, 1991).

The sample size for developing a latent construct has frequently been a point of contention (Boateng et al., 2018). Boateng et al. (2018) and Worthington and Whittaker (2006) reviewed the literature on establishing a sample that meets psychometric criteria, such as minimum commonalities and factor loadings within a dataset. Following guidelines in scale development research, a range of 200-300 participants is appropriate for factor analysis because it balances practicality and statistical rigor (Comrey, 1988). For this reason, we aimed to collect 300 participants to ensure stable factor loadings and replicable structure.

Study Measures

Following approval from the author's university's institutional review board (IRB), the study recruited participants via Connect by CloudResearch. This online platform enables researchers to post tasks such as surveys for individuals to complete in exchange for payment. Connect by CloudResearch has become increasingly popular in behavioral science research as a cost-effective and efficient means of collecting survey data, particularly from hard-to-reach groups (Moss et al., 2023).

The study participants were asked to complete measures online through a Qualtrics survey. They were provided with informed consent (see Appendix C) before proceeding. The measures included in this study consisted of a) screening questions to determine eligibility related to age (i.e., >17 years) (see Appendix D); b) demographics (see Appendix E); and c) proposed items for the CWWI scales (see Appendix F). Below is a detailed description of the administered measures.

Screening Questions

On the Connect by CloudResearch platform, the author shared a survey link targeting a sample size of 300 participants and specified that participants needed to meet specific criteria, including (a) being employed, (b) being between the ages of 18 and 64, (c) belonging to a recognized racial or ethnic group (e.g., African/African-American/Black; American Indian/Native American/First Nation; Arab American/Middle Eastern; Asian/Asian American; Asian Indian; Hispanic/Latina/o American; Pacific Islander), and (d) participating in a work-related survey. Participants were presented with screening questions to assess their eligibility. To ensure our data accurately reflects the experiences of the target population, respondents who did

not meet the above criteria were redirected to a thank-you page, informing them that they were ineligible to participate in the study due to age restrictions.

Sample of Proposed Items of the CWWI Scales

It was hypothesized that the CWWI would consist of six independent scales assessing the degree of capital individuals possess in the following domains: aspirational, linguistic, familial, social, navigational, and resistant. The participants were instructed: “Please select the response below that best represents you.” These scales will include item statements to which respondents respond on a 6-point Likert-type scale, ranging from 1 to 6 (i.e., 1=Not at all like me, 2=Very slightly like me, 3=Slightly like me, 4=Moderately like me, 5=Very much like me, 6=Exactly like me). Higher scores will indicate a greater endorsement of the form of capital being measured. Sample items of the CWWI Aspirational Capital Scale include “I have the strength to get through workplace struggles” and “I am hopeful for my future career success.” Sample items of the CWWI Linguistic Capital Scale include “I can switch my language style depending on the audience” and “I feel comfortable speaking another language with my co-workers.” Sample items of the CWWI Familial Capital Scale include “I have gained wisdom from my family about how to navigate work” and “My family has passed down important values about work.” Sample items of the CWWI Social Capital Scale include “I am confident in my ability to network with others” and “I participate in supportive groups at work (e.g., affinity groups).” Sample items of the CWWI Navigational Capital Scale include “I know how to find resources to help me succeed at work” and “Even when presented with barriers, I can find and access resources at my workplace.” Sample items of the CWWI Resistant Capital Scale include “I know how to challenge discrimination in the workplace” and “I believe I will make a difference in combatting prejudice in my workplace.”

Demographics

Participants were asked to provide the following demographic information: age, gender identity, sexual orientation, racial/ethnic identities, education level, income level, and perceived subjective social status. All demographic questions were created for this study except for the subjective social status. The MacArthur Scale of Subjective Social Status (MacArthur SSS Scale), developed by Adler et al. (2000), was employed in this study to assess respondents' perceived social status. This single-item measure requested individuals to rate their subjective social status compared to others in society on a 10-point Likert scale (1 = "bottom rung" and 10 = "top rung"). The scale was shown as an image of a ladder with ten rungs, allowing for a continuous response. Operario et al. (2004) reported that the MacArthur Scale of Subjective Social Status (USA Ladder) demonstrated satisfactory 6-month test-retest reliability, with a Spearman's rank order correlation of .62 ($p < .01$).

Data Analysis

The quality of responses from the sample used to create items was evaluated. Data cleaning entailed thoroughly inspecting the data for obvious input errors, answers that indicate the respondent was not paying attention to item content, and outliers (DeSimone et al., 2015). Due to the vulnerability of online data gathering to fraudulent responses, data such as completion time and demographic information were carefully evaluated to identify possible fraudulent responses. In addition, the survey included two items to evaluate respondents' overall attention (e.g., "Please select option 5 below").

Study Data Screening

The online survey responses were obtained from Qualtrics in a comma-separated values (CSV) spreadsheet format. The data was imported into Microsoft Excel for cleaning and then

analyzed using IBM SPSS Statistics (Version 29) software. The author excluded survey responses from individuals who did not complete the screening questions, failed screening questions because they were legal minors, or did not provide answers beyond the screening questions. Additionally, any responses flagged by Qualtrics as suspicious due to concerns over repeated submissions were removed. Survey responses that failed one or more validity checks scattered throughout the survey were also excluded.

Cleaning Study Demographic Variables

Data was entered into Microsoft Excel for cleaning. The demographic variables were reviewed and refined before analysis. Variables that allowed respondents to select multiple options were re-coded to represent broader categories. For example, participants who identified with two or more racial/ethnic identities were re-coded as “Multiracial” for statistical analysis purposes.

Decisions About Missing Study Data

The final study sample was thoroughly analyzed for patterns of missing data. Recognizing these patterns is essential for selecting appropriate statistical methods and validating the results. If not adequately managed, missing data can significantly impact statistical power, introduce bias, and reduce the accuracy of findings (Gravetter & Wallnau, 2017). Consequently, a systematic approach was implemented to identify and address missing data issues in this research.

Missing data are typically categorized as missing completely at random (MCAR), missing at random (MAR), or missing not at random (MNAR) (Gravetter & Wallnau, 2017). In the case of MCAR, missing data is completely random and does not affect the statistical analyses. MAR implies that the missing data is related to the observed data but not the missing

data itself and can be handled through methods such as multiple imputations. However, MNAR occurs when the missing data is related to both the observed and missing data and is more challenging to handle. Additionally, missing data patterns may be described as univariate, monotone, or arbitrary. Univariate missingness occurs when data is missing on only one variable, while monotone missingness occurs when the missing data are either all above or below a specific value on a variable. Finally, arbitrary missingness occurs when data are missing for reasons unrelated to the variables themselves.

Addressing missing data is crucial for maintaining statistical power, minimizing bias, and increasing the accuracy of the results (Gravetter & Wallnau, 2017). Therefore, an appropriate missing data handling technique, such as multiple imputations, was used to address any missing data patterns in the final sample of this study.

Multiple Imputation of Missing Study Data

This section will discuss methods for imputing missing data. In brief, using IBM SPSS Statistics (Version 29) software, a covariance matrix was derived from multiple imputed quantitative data. The analyses and estimates were based on the expected covariance matrix from this procedure. An exploratory factor analysis was performed on the averaged estimated covariance matrix.

Conduct an Exploratory Factor Analysis to Extract Factors

This study aimed to gather a diverse sample of employed adults to administer a preliminary pool of items assessing the six proposed Cultural Wealth at Work Inventory scales. The goal was to develop a final measurement scale produced by analyzing the factor structure of the initial item pool and the item factor loadings of an exploratory factor analysis. The initial testing and refinement of the CWWI will first be described. The exploratory factor analysis

(EFA) process and results will then be reported. The results of this study will be discussed herein.

Preliminary Study Item Evaluation

The preliminary item evaluation of this study will be discussed. The CWWI item data were assessed for retention before the exploratory factor analysis. Using IBM SPSS Statistics (Version 29) software, a test for multivariate normality was performed on the complete cases of the dataset. This test measures the functional distance between two distribution functions; the resulting Henze-Zirkler statistic is roughly lognormally distributed if the data are multivariate normal (Henze & Zirkler, 1990). Using IBM SPSS Statistics (Version 29) software, the multivariate normality of the items was evaluated by examining skewness and kurtosis. Following Hair et al. (2018), items were removed if their absolute skewness values were greater than two or if absolute kurtosis values were greater than 7. Next, the author evaluated the response distribution in a density plot to assess univariate normality. The multicollinearity of a bivariate item correlation matrix was investigated, and strong bivariate correlations between items imply that we can delete an item to decrease redundancy. Inter-item correlations for each measured construct (i.e., navigational, aspirational, social, resistant, linguistic, and familial capital) were investigated using IBM SPSS Statistics (Version 29) software by calculating correlations between each item and the overall scale if that item is deleted. Following Watson's (2017) recommendation, any item having an inter-item correlation value of less than 0.2 was eliminated because those items did not present the same construct. The correlation between each item and the overall scale was calculated and adjusted for item overlap and scale reliability. The improved scale's internal consistency was computed.

Exploratory Factor Analysis

Assessing Sampling Adequacy. A correlation matrix of the modified scale was checked for sample adequacy using the IBM SPSS Statistics (Version 29) software before performing an exploratory factor analysis. A Kaiser-Meyer-Olkin (KMO; Kaiser & Rice, 1974) test allowed the author to assess the sample adequacy of each CWWI item and the entire collection of items. The KMO test returns a Measure of Sampling Adequacy (MSA) coefficient ranging from 0 to 1, with values above 0.8 indicating an appropriate proportion of variances that may be common variances. According to Kaiser and Rice (1974), these are the following ranges for MSA coefficients: unacceptable (0-0.49), miserable (0.5-0.59), mediocre (0.6-0.69), middling (0.7-0.79), meritorious, (0.8-0.89), and marvelous (0.9-1). The KMO test on the imputed correlation matrix produced an MSA coefficient, which was computed for each item of the imputed correlation matrix to ensure our items were not below the mediocre range before beginning the exploratory factor analysis. Using IBM SPSS Statistics (Version 29) software, the potential factor reliability of the correlation matrix was evaluated. Bartlett's test (Bartlett, 1937) compares the correlation matrix to the identity matrix, revealing any redundant relationships between variables that may be factorable and testing the assumption that variances are homogeneous across groups.

Determining the Number of Factors to Retain. Boateng et al. (2018) outlined several methods researchers can use to determine the number of factors to retain from the list of items. According to Boateng et al. (2018), researchers should start with widely available methods such as scree plots (Cattell, 1966) and then, if feasible, assess the optimal number of factors to be drawn from the list of items using parallel analysis (O'Connor, 2000). We compared multiple-factor solutions using Goldberg's (2006) Bass-Ackwards Method (Waller, 2007). The

methodology and decision-making process for the number of factors representing the objects are detailed in this document.

Scree Test. Cattell's (1966) scree test is a popular visualization technique in exploratory factor analysis that offers valuable information about the number of factors that should be retained. It plots each factor's eigenvalues in descending order against its matching factor number. The scree plot helps researchers visually identify the "elbow point," which Cattell (1966) called the point of inflexion because it marks where the slope of the line changes dramatically and at which adding more factors does not significantly enhance the variation explained by the factors.

For this project, we generated a scree plot based on the eigenvalues of the first few factors, followed by a leveling off or "elbow" beyond which the eigenvalues are relatively small. We decided how many factors to keep based on the scree plot, especially those that account for a majority of the variance in the data, and discarded the other factors. This decision was evaluated further by looking at the factor loadings and interpretability of the retained factors. The scree plot gives a reasonably valid criterion for factor selection in a sample of more than 200 individuals (Pituch & Stevens, 2016). Although scree plots are highly informative, they are subjectivity sensitive, and factor selection should not be based only on this criterion.

Parallel Analysis. Kaiser (1960) advised keeping all factors with eigenvalues greater than one. Jolliffe (1972, 2013) claims that Kaiser's criterion is excessively stringent and recommends the alternative of keeping all factors with eigenvalues larger than 0.7. Parallel analysis was created in response to Kaiser's (1960) rigorous eigenvalues should be larger than 1 condition. According to Pituch and Stevens (2016), a parallel analysis better accommodates sampling error and is one of the most reliable ways to calculate the number of factors to keep

from observed data. We conducted a parallel analysis to decide how many factors to retain. This parallel analysis determined the eigenvalues after evaluating commonalities based on a single factor.

We used a parallel analysis program through IBM SPSS Statistics (Version 29) software (O'Connor, 2000). A copy of the parallel analysis program's syntax is attached in Appendix I. The modified CWWI dataset eigenvalues were generated using the principal axis factoring method of extraction, allowing us to compare them to the scale's random variable data matrix. For two reasons, the author chose the principal axis factoring method of extraction. First, it does not assume multivariate normality, making it more suitable for datasets that violate this assumption. Second, it focuses on common variance by excluding unique and error variance, which provides a clearer picture of the underlying factor structure and enhances the interpretability of the results. This approach ensures a robust and accurate determination of the number of factors to retain in the exploratory factor analysis. This parallel analysis will result in a modified-CWWI factor solution.

Comparing Multiple Solutions. The author anticipated that the abovementioned approaches for determining the number of factors to retain will provide different solutions. However, the author compared the MAP criterion and the parallel analysis and visually inspected the scree plots to decide how many factors would be most interpretable.

One approach is to conduct a series of factor analyses and examine the correlations between successive solutions to determine the number of factors underlying the data. We can compare multiple-factor solutions using Goldberg's (2006) Bass-Ackwards Method to help us decide on the best factor solution (Waller, 2007). The bassAckward procedure estimated the proportion of variance explained by successive factor models. Goldberg (2006, p. 353) suggested

the following method for estimating the number of factors to extract: “An appealing characteristic of these top-down factor representations is that one need not commit oneself in advance to the optimal number of factors to extract and rotate. Instead, one can continue down the hierarchy until one reaches a level at which no new interesting factors appear.” The author examined the factor models at each level.

Several exploratory analyses were conducted using IBM SPSS Statistics (Version 29) software to determine which n-factor solution best fits the data. For all analyses, the author utilized the principal axis factoring method of extraction, which is like the maximum likelihood factor method and does not require a multivariate normal distribution. This method derives solutions through iterative eigendecomposition and the first factor accounts for as much of the common variance as possible. The chosen rotation method for all analyses will be Promax, as we expect to find intercorrelations between factors.

Optimizing Scale Length. The scale length was optimized following DeVellis and Thorpe’s (2021) guidelines. Items with absent factor loadings larger than or equal to 0.32 were evaluated for removal from the initial CWWI-dataset pattern matrix (Watson, 2017). Items that cross-load with values more than or equal to 0.32 on multiple factors were also evaluated for removal, according to the recommendations of Hair et al. (2018). Following Watson’s (2017) recommendations, items displaying significant cross-loadings across multiple factors were assigned to the factor with the highest loading, provided that the difference between the highest loading and the next highest was at least .10. If this criterion was not met, the item was removed from the analysis (Watson, 2017). Furthermore, the theoretical consistency of each item’s factor loading was assessed. Items were deleted individually, with an exploratory factor analysis

performed after each removal. The generated pattern matrices were reviewed for subsequent item removal or retention.

Items were removed for cross-loading on greater than one factor, content redundancy, insufficient loading on any one factor, and lacking conceptual clarity. In the upcoming analysis, the communalities of the items in the final factor structure were meticulously reviewed to identify any items that could be excluded. An item's communality indicates the proportion of its unique variance to its shared variance (Costello & Osbourne, 2005). The appropriate cutoff values for communality vary in the literature, ranging from 0.20 (Child, 2006) to 0.40 (Fabrigar et al., 1999). For this dissertation, the author retained items above 0.40 (Fabrigar et al., 1999; Watson, 2017).

Lastly, the internal consistency of the most recently refined CWWI scale after the items were removed was examined. The Cronbach's alpha of each construct were computed using IBM SPSS Statistics (Version 29) software. Cronbach alpha values of 0.7 or higher indicate acceptable internal consistency (Taber, 2018).

Chapter 4: Results

Chapter 4 presents the results of the two research questions (RQs) investigated in this study.

RQ1: What is the factor structure of the items on the CWWI with a sample of U.S. workers aged 18 to 64 who belong to a racial and ethnic group historically impacted by marginalization?

RQ2: What is the internal consistency reliability of the CWWI with a sample of U.S. workers aged 18 to 64 who belong to a racial and ethnic group historically impacted by marginalization?

The data was analyzed primarily using IBM SPSS Statistics (Version 29) software.

Descriptive Statistics

A total of 291 responses from the online Qualtrics survey were recorded. First, 18 incomplete responses (less than 85% progress rate of completing the instrument) were removed from the data set, resulting in 273 remaining responses. Second, one response that did not meet the inclusion criteria (i.e., age) was removed from the data, resulting in 272 remaining responses. Finally, 29 responses were removed due to failing any validity checks (i.e., unreasonably short completion time, fraudulence check, and two attention checks) embedded in the survey, resulting in 243 final responses eligible for further analyses.

Participants Demographics

The participants' ages ranged from 19 to 64 (Mean = 32.63, Median = 32, SD = 7.92). Table 1 summarizes the participants' other demographic characteristics. Consistent with prior literature that indicates recruiting an online sample is advantageous in diversifying the participant pool (Douglas et al., 2023), the sample for this study is diverse in terms of age,

gender identity, sexual identity, racial/ethnic identities, education level, income level, and perceived subjective social status.

Table 1

Participants Demographic Characteristics

Demographic Category	Total (n)	Percentage
Gender (N = 243)		
Male	115	47.3%
Female	113	46.5%
Transman	3	1.2%
Transwoman	2	0.8%
Prefer to self-describe	9	3.7%
Prefer not to say	1	0.4%
Race/Ethnicity (N = 243)		
African/African-American/Black	14	5.8%
American Indian/Native American/First Nation	2	0.8%
Arab American/Middle Eastern	0	0%
Asian/Asian American	6	2.5%
Asian Indian	1	0.4%

Hispanic/Latina/o American	136	56.0%
Pacific Islander	1	0.4%
White/European American/Caucasian	0	0%
Biracial or Multiracial	81	33.3%
Prefer to self-describe	2	0.8%
Sexual Orientation (<i>N</i> = 243)		
Exclusively lesbian or gay	7	2.9%
Mostly lesbian or gay	6	2.5%
Bisexual	42	17.3%
Mostly Heterosexual	27	11.1%
Exclusively Heterosexual	154	63.4%
Asexual	3	1.2%
Prefer to self-describe	2	0.8%
Prefer not to say	2	0.8%
Education (<i>N</i> = 243)		
Less than high school	0	0%
High school or GED	28	11.5%
Associate or 2-year degree	27	11.1%

Some college	52	21.4%
Bachelor's degree	99	40.7%
Master's degree	33	13.6%
Professional degree (MD, JD, PhD)	4	1.6%
Employment status (<i>N</i> = 243)		
Employed part-time	51	21%
Employed full-time	182	74.9%
Part-time student	0	0%
Full-time student	4	1.6%
Military (reservist)	0	0%
Military (active duty)	6	2.5%
Personal Income Before Taxes (<i>N</i> = 243)		
\$10,000 - \$19,999	27	11.1%
\$20,000 - \$29,999	25	10.3%
\$30,000 - \$39,999	24	9.9%
\$40,000 - \$49,999	23	9.5%
\$50,000 - \$59,999	45	18.5%

\$60,000 - \$69,999	30	12.3%
\$70,000 - \$79,999	22	9.1%
\$80,000 - \$89,999	12	4.9%
\$90,000 - \$99,999	7	2.9%
\$100,00 - \$149,999	20	8.2%
\$150,000 or more	8	3.3%
Lifetime SES (N=243)		
Lower Class	27	11.1%
Working Class	114	46.9%
Middle Class	100	41.2%
Upper Class	1	0.4%
Prefer to self-describe	1	0.4%
Subjective Social Status (N = 243)		
1 – Bottom Rung	0	0%
2	2	0.8%
3	5	2.1%
4	31	12.8%
5	42	17.3%
6	63	25.9%

7	54	22.2%
8	34	14%
9	10	4.1%
10 – Top Rung	2	0.8%

Descriptive Statistics of the CWWI

Appendix G contains the descriptive statistics of the CWWI items, including means, standard deviations, skewness, and kurtosis values. All CWWI items exhibited skewness and kurtosis estimates within the acceptable range (absolute skewness < 2.0 and absolute kurtosis < 2.0; Hair et al., 2018), indicating that the recommendation for univariate normality was met. However, the multivariate normality of the CWWI items was examined using the Henze-Zirkler test (Henze-Zirkler Statistic = 1.032081, $p < 0.001$), which indicated that the assumption of multivariate normality was not met. Therefore, principal axis factoring was the recommended extraction method supported by the data characteristics.

RQ1: Factor Structure

Exploratory Factor Analyses (EFAs) were conducted to determine the factor structure of the CWWI. Before proceeding with the primary analysis, several statistical assumptions associated with EFA were examined. First, the linearity assumption was determined by reviewing the scatterplots of all variables. No non-linear relationships were found between variables. Second, univariate normality was not violated, reflected by the mild skewness (absolute value ranging from 0.09 to 1.11) and kurtosis (absolute value ranging from 0.01 to 1.48) estimates.

Finally, factorability was determined by first inspecting the correlational matrix to see whether the absolute value of the inter-item correlation coefficient r for each item was not too low ($<.20$, indicating items not presenting the same construct) or too high ($>.80$, indicating concerns of multicollinearity). Upon examining the correlational matrix, “I have gained wisdom from my family about how to navigate work” and “The knowledge passed down through my family has helped me work better with coworkers from different backgrounds” were removed for having inter-item correlations of $r = 0.843$ and $r = 0.808$, respectively. Additionally, “My family supports my work choices,” “My work environment does not support me, but I know how to succeed there,” and “I learned how to blend into my workplace, so I do not get in trouble” were removed for having low inter-item correlations of $r = 0.171$, $r = 0.003$, $r = 0.010$, respectively. Moreover, two *a priori* analyses (i.e., the KMO measure of sampling adequacy and Bartlett’s test of sphericity) were conducted to assess factorability. A KMO test value greater than $.60$ and the rejection of a null hypothesis in Bartlett’s Test ($p < .05$) indicate that the set of items has acceptable factorability. For the CWWI items, the Kaiser-Meyer-Olkin (KMO, Kaiser & Rice, 1974) Measure of Sampling Adequacy was 0.947 , which is in the “meritorious” range, supporting the factorability of the matrix. Additionally, Bartlett’s Test was significant ($\chi^2 = 13205.167$, $p < .001$, $df = 1891$), indicating that the sample correlation matrix is statistically significantly different from an identity matrix, thus rejecting the null hypothesis; factor analysis was an appropriate next step.

An EFA was then conducted using principal axis factoring and Promax as the rotation method on the remaining items. Given that there were six hypothesized construct dimensions associated with CWWI and in harmony with Goldberg’s (2006) Bass-Ackwards Method, a series of models (i.e., 1-factor, 2-factor, 3-factor, 4-factor, 5-factor, 6-factor) were explored using IBM

SPSS Statistics (Version 29) software. To determine the number of factors in the preferred model, the following factor retention criteria were consulted: (a) Kaiser’s Eigenvalue-greater-than-one rule, (b) Scree test, and (c) Parallel analysis.

Table 2 Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	21.775	43.550	43.550	21.426	42.853	42.853	14.754
2	3.565	7.131	50.680	3.247	6.493	49.346	15.731
3	3.137	6.274	56.954	2.787	5.574	54.920	15.689
4	2.558	5.116	62.069	2.211	4.423	59.343	12.406
5	1.955	3.911	65.980	1.612	3.223	62.566	14.826
6	1.387	2.774	68.754	1.029	2.058	64.624	13.385
7	.995	1.991	70.744				

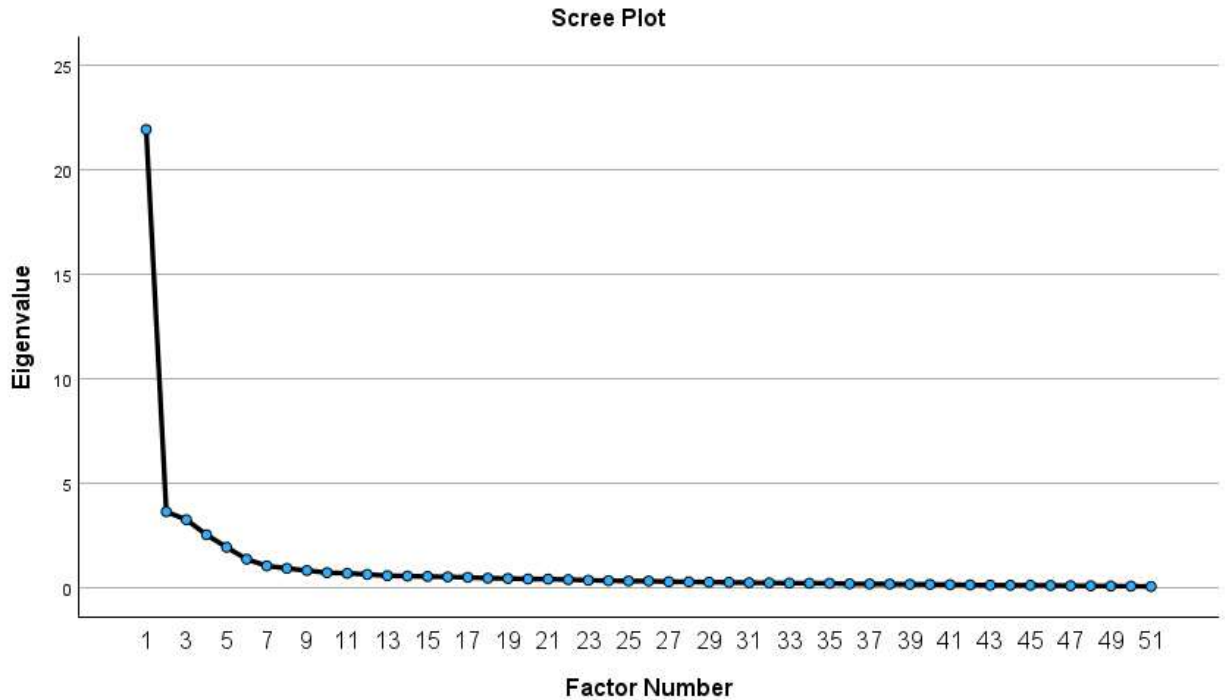


Figure 3: Scree Plot of CWWI Factors

Six factors were identified with mean eigenvalues above 1.0. The scree plot partially supported six to seven factors. If the number of factors is not easily discernible, Matsunaga (2010) suggested conducting a parallel analysis to determine whether the eigenvalues generated by the EFA are above the eigenvalues. A parallel analysis (O'Connor, 2000) was conducted by comparing the principal axis factoring eigenvalues against randomly generated eigenvalues, suggesting a six-factor solution.

Table 3

Parallel Analysis's Randomly Generated Eigenvalues

Factor	Mean Eigenvalue	95 th Percentile Eigenvalue
1	1.41	1.52
2	1.30	1.39

3	1.22	1.29
4	1.15	1.22
5	1.09	1.15
6	1.03	1.09
7	0.98	1.03

Once the factor structure was established and factors rotated, items were chosen to represent each factor. Two key criteria guided the decision to delete or retain items. First, the communality estimate of each item was analyzed, with values ranging from .40 to 1.0, typically suggesting item retention (Watson, 2017; Worthington & Whittaker, 2006). The communalities were examined (Appendix J). Three more iterations of EFAs were conducted until the communality for each item exceeded 0.40. This process eliminated “I participate in groups/activities outside of work (church, music, sports, etc.),” “My family has a meaningful history of working specific jobs,” and “I do specific things, like dressing a certain way or changing how I speak, to better fit in at work.”

Second, factor loadings were evaluated. Items with primary loadings below .32 were removed (Watson, 2017). Additionally, items with significant cross-loadings across multiple factors were allocated to the factor with the highest loading as long as this loading exceeded the next highest factor by at least .10; otherwise, the item was deleted (Watson, 2017). “I can maintain my professional goals despite facing challenges at work,” “I have mentors in my community who guide me through work challenges,” “To be more approachable, I learned how to make myself “more presentable” at work (e.g., dress, behavior, or manner of speaking),” “I participated in a support group at work (e.g., an affinity group)” were deleted because their cross-loading difference was <0.10. “Even when work is tough, I engage in many parts of my

job. That includes doing tasks, working on projects, and teaming up with coworkers.” failed to load onto a factor or loaded at a low level (<0.32). Following the removal of items, a new EFA was performed to confirm the stability of the factor structure. This resulted in fifty items distributed across six clean factors, with no remaining cross-loading (Table 4). About 68.75% of the variance was explained by the six dimensions.

Table 4

Results From a Factor Analysis of Cultural Wealth at Work Inventory (CWWI)

CWWI Items	Factor Loading					
	1	2	3	4	5	6
AC1 I pursue my goals in the workplace.		.669				
AC3 I remain hopeful about my future career opportunities.		.753				
AC4 I am motivated to overcome work-related obstacles to achieve my aspirations.		.768				
AC5 Challenges at work do not deter my dreams of success.		.729				
AC6 I have a clear vision of my long-term career goals.		.703				
AC7 My career goals motivate me to overcome challenges.		.763				
AC8 I bounce back quickly from setbacks in my professional life.		.770				
AC9 I see setbacks as temporary and continue working towards my goals.		.872				
AC10 I can sustain my dreams for the future while working through work challenges.		.923				
AC11 My aspirations remain intact despite the demands of my job.		.899				

LC1 I feel comfortable speaking in different styles of communication with my co-workers.	.787		
LC2 I understand the work-related language my co-workers use.	.606		
LC3 I can switch my style of communication depending on the audience.	.955		
LC4 My communication skills help me make more meaningful contributions at work.	.792		
LC5 I am skilled at navigating cultural nuances in my workplace.	.710		
LC6 I am skilled at adapting my communication style in my workplace.	.899		
LC7 Using my language skills, I can bring people together to work well with each other.	.588		
LC8 My skill to talk well in different ways helps make communication easier at my job.	.710		
LC9 I use my linguistic skills to creatively address challenges in my work environment.	.554		
SC2 I feel comfortable connecting with my co-workers for support.		.551	
SC3 My friends encourage me to take full advantage of my career opportunities.		.565	
SC6 My relationships with coworkers contribute to a positive work environment.		.669	

SC7 My relationships with coworkers contribute to fostering a sense of community.				.962
SC8 My coworkers are valuable members of my professional network.				.955
SC9 My social support at work helps me navigate workplace policies and procedures.				.670
SC10 I know people in my community who support my professional growth and development.				.572
SC11 I have a network of coworkers who can help me when facing work-related challenges.				.705
FC1 Knowledge and experiences from my family help me bring a unique perspective to my work.				.523
FC2 My family members have passed down valuable lessons about work.				.853
FC3 I have strong career role models in my family.				.832
FC4 My family history guides my choices about work.				.745
FC5 Family members have taught me about “good” and “bad” kinds of work.				.787
FC6 Specific kinds of jobs have lots of meaning in my family.				.645
FC8 My family has passed down important values about work.				.794
FC10 My family has taught me how to make choices about work.				.880
NC1 I know how to find resources to help me succeed at work.				.546

NC9 I feel confident navigating social institutions when faced with workplace challenges.					.697
NC10 I can maneuver through workplace structures that were not initially designed for people like me.					.725
NC11 I can adapt to the expectations and norms of my workplace, even if they are not inclusive.					.758
NC12 I am good at adapting to how things work at work, even when I do not always think about everyone's different backgrounds.					.658
RC1 When faced with workplace inequality, I actively challenge it.	.710				
RC2 I can navigate discrimination in my workplace.	.667				
RC3 I am confident in criticizing unfair workplace policies and practices.	.855				
RC4 My ability to challenge authority contributes to a more equitable work environment.	.913				
RC5 I seek out opportunities to address instances of injustice within my workplace.	.950				
RC6 I have knowledge and skills that help me speak up against unfair treatment at work.	.823				
RC7 I proactively promote equality and fairness within my workplace.	.752				
RC8 My behavior at work reflects my commitment to confronting discrimination.	.900				

RC9 I create a work environment where opposition to inequality is valued.	.770					
RC10 I use my knowledge and skills to help my colleagues create an equitable work environment.	.675					

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in six iterations.

Finally, Table 5 shows the factor correlation matrix obtained from the final EFA. The correlations between the six extracted factors ranged from $r = 0.491$ to $r = 0.659$, indicating a moderate correlation among them.

Table 5

Factor Correlation Matrix

Factor	1	2	3	4	5	6
1	1.000	.545	.593	.515	.508	.554
2	.545	1.000	.637	.504	.658	.541
3	.593	.637	1.000	.491	.628	.659
4	.515	.504	.491	1.000	.531	.491
5	.508	.658	.628	.531	1.000	.622
6	.554	.541	.659	.491	.622	1.000

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

The correlation between Factor 3 (Linguistic Capital) and Factor 6 (Navigational Capital) was the strongest among the factor pairs ($r = .659$), indicating significant conceptual overlap, likely reflecting how the ability to adapt communication styles can help navigate institutional barriers. In contrast, Factors 3 (Linguistic Capital) and 4 (Familial Capital) had the lowest correlation ($r = .491$), showing that these two constructs are more conceptually distinct. The moderate range of correlations across all factors ($r = .491$ to $r = .659$) supports using oblique rotation (Promax), which assumes related but separate constructs. Importantly, the lack of very high correlations (e.g., $r > .80$) suggests that the six factors measure different dimensions of cultural wealth, rather than overlapping or redundant constructs.

RQ2: Internal Consistency Reliability

Internal reliability was assessed using Cronbach's alpha (Cronbach, 1951). The overall reliability of the CWWI was acceptable ($\alpha = .972$). Additionally, Factor 1 ($\alpha = .952$), Factor 2 ($\alpha = .943$), Factor 3 ($\alpha = .931$), Factor 4 ($\alpha = .924$), Factor 5 ($\alpha = .925$), and Factor 6 ($\alpha = .888$) all fall within the acceptable range of reliability.

Chapter 5: Discussion

In Chapter 5, the researcher discusses the results in the context of the literature summarized in Chapter 2. Additionally, the study's theoretical and methodological contributions, practical implications for vocational psychology, vocational settings, as well as its limitations and future research directions are addressed.

Factor Dimensions

The Cultural Wealth at Work Inventory (CWWI) factor analysis has revealed a six-factor structure that operationalizes Yosso's (2005) Community Cultural Wealth (CCW) model within workplace contexts. Refer to Figure 4 for details.



Figure 4: Community Cultural Wealth Model

These findings substantiate a growing body of scholarship that critiques traditional applications of Bourdieu's (1986) cultural capital theory as deficit-oriented and insufficient for capturing the lived realities and adaptive capacities of Communities of Color in institutional contexts.

Theoretical Contributions

Rather than replicating Yosso's (2005) framework wholesale, the CWWI provides an empirical basis for understanding how each dimension of cultural wealth manifests in the workplace. This domain has historically rendered such assets invisible. This finding challenges Bourdieu's (1986) theory of cultural capital. Critics have noted that this theory exhibits a Eurocentric bias and overlooks the strengths of Communities of Color (Archer, 2010; Wallace, 2018). For example, while Bourdieu's cultural capital focuses on institutionalized knowledge, such as academic credentials, the CWWI highlights the significance of Linguistic Capital, including code-switching and multilingualism, as valuable assets in the workplace. This emphasizes the lived experiences of individuals navigating diverse cultural norms. This distinction is crucial: by reconceptualizing cultural wealth as an inclusive and multidimensional construct, the CWWI effectively counteracts deficit narratives that attribute workplace inequities to individual shortcomings rather than to systemic barriers (Yosso, 2005; Carales & López, 2020). The robust factor loadings across all six dimensions (e.g., .923 for Aspirational Capital and .950 for Resistance Capital) further strengthen the use of CCW as a model applicable in professional settings.

Factor 1: Resistant Capital

For example, the first factor, Resistant Capital, reflects an individual's ability to recognize, challenge, and respond to workplace inequalities and promote equity. Items such as RC5 ("I seek out opportunities to address instances of injustice within my workplace") and RC8 ("My behavior at work reflects my commitment to confronting discrimination") loaded strongly on this factor, with loadings of .950 and .900, respectively. These responses suggest that many participants view social justice as an integral part of their professional identity.

The emergence of resistant capital as a distinct and internally consistent factor underscores Yosso's (2005) original emphasis on the role of agency and advocacy in creating equitable environments, primarily where systemic inequities often manifest as microaggressions (Sue et al., 2007), wage gaps (Fryer et al., 2013), and glass ceilings (Wilson & Roscigno, 2016). This factor resonates with the concept of critical consciousness, which involves developing a critical awareness of one's social reality and taking action to transform it (Freire, 1970, 1974).

The significance of this factor might also be influenced by the predominantly large Latino sample size. Historical aspects of migration, advocacy for labor rights, and collective efforts may have fostered a cultural model of resistance, particularly in workplace environments where these individuals are underrepresented or undervalued.

Unlike traditional human capital models, which prioritize individual skill acquisition (Becker, 1962), this factor speaks to the importance of agency, collective action, and relational and structural knowledge. It also aligns with a core principle of Critical Race Theory (CRT), emphasizing the importance of challenging dominant ideologies and promoting social justice (Ladson-Billings & Tate, 1995; Solórzano & Yosso, 2001). It emphasizes that acts of resistance are inherently methods of navigating the workplace, an insight vital for vocational psychologists and employers committed to promoting equity and equality.

Factor 2: Aspirational Capital

The second factor, Aspirational Capital, reflects an individual's ability to maintain hope, motivation, and resilience in pursuing career goals despite workplace challenges. Items such as AC9 ("I see setbacks as temporary and continue working towards my goals") and AC10 ("I can sustain my dreams for the future while working through work challenges") loaded strongly on this factor, with loadings of .872 and .923, respectively.

This finding aligns with Yosso's (2005) definition of aspirational capital as the ability to foster resilience and optimism in the face of obstacles. It also resonates with human capital theory, which emphasizes the role of individual agency in achieving economic success (Becker, 1962; Schultz, 1961). However, unlike human capital theory, which often overlooks structural barriers, Aspirational Capital here is adaptive. It is a culturally embedded hope that persists despite experiences of racism, exclusion, and invisibility at work. The importance of this factor could also be affected by the mostly large Latino sample size. This may represent multigenerational aspirations, such as honoring one's parents' or ancestors' sacrifices by advancing in one's career. This culturally rooted optimism opposes deficit narratives and redefines endurance as a type of political and psychological resistance.

Factor 3: Linguistic Capital

The third factor, Linguistic Capital, captures an individual's ability to adapt communication styles in the workplace. Items such as LC3 ("I can switch my style of communication depending on the audience") and LC6 ("I am skilled at adapting my communication style in my workplace") loaded strongly on this factor, with loadings of .955 and .899, respectively. This dimension reflects Yosso's (2005) emphasis on multilingualism and linguistic flexibility, which can be extended into professional settings. It also addresses a gap in Bourdieu's cultural capital theory, which tends to privilege dominant linguistic norms while marginalizing the communication styles of Communities of Color (Leacock, 1971; Ladson-Billings, 1998). The high loadings suggest that linguistic capital is a critical resource for workers from Communities of Color in fostering collaboration and understanding in diverse work environments.

Factor 4: Familial Capital

The fourth factor, Familial Capital, encompasses the knowledge, values, and role models passed down in the family that influence workplace behavior and decision-making. Items such as FC2 (“My family members have passed down valuable lessons about work”) and FC10 (“My family has taught me how to make choices about work”) loaded strongly on this factor, with loadings of .853 and .880, respectively. This factor illustrates how cultural values are transferred across generations and mobilized in the workplace.

Additionally, this dimension validates Yosso’s (2005) argument that intergenerational knowledge is a form of cultural wealth, countering Bourdieu’s (1986) narrow focus on dominant-class cultural signals and “institutional” forms of capital (e.g., elite schooling) (Bromer et al., 2023). The strong loadings suggest that familial capital is a distinct and meaningful dimension of cultural wealth, particularly for workers of color who draw on family histories and values to navigate professional environments. Participants may view their families not only as sources of support but also as motivators and moral guides when facing challenging work situations.

Factor 5: Social Capital

The fifth factor, Social Capital, reflects the value of professional networks and social support in the workplace. Items such as SC7 (“My relationships with coworkers contribute to fostering a sense of community”) and SC8 (“My coworkers are valuable members of my professional network”) loaded strongly on this factor, with loadings of .962 and .955, respectively. This finding aligns with Bourdieu’s (1986) conceptualization of social capital as the resources embedded in social networks. However, the CWWI expands this concept by emphasizing the relational collectivism embedded within Communities of Color, which are often overlooked in traditional frameworks (Yosso, 2005; Fernández et al., 2020). These networks are

frequently formed through affinity groups, mentorship alliances, or shared experiences of marginalization. As Yosso (2005) noted, these connections can be transformative, even if they lack formal institutional recognition. The high factor loadings emphasize the importance of relational resources for navigating workplace policies and career opportunities. They also suggest that workplace belonging and peer connection function as protective elements. Employers should prioritize affinity-based networking and community-building initiatives, viewing them not merely as inclusion efforts but as strategic measures to enhance retention and psychological safety.

Factor 6: Navigational Capital

The sixth factor, Navigational Capital, reflects an individual's ability to maneuver through workplace structures and institutional challenges. Items such as NC10 ("I can maneuver through workplace structures that were not initially designed for people like me") and NC11 ("I can adapt to the expectations and norms of my workplace, even if they are not inclusive") loaded strongly on this factor, with loadings of .725 and .758, respectively. This finding aligns with Yosso's (2005) emphasis on the resilience and adaptability of Communities of Color in navigating systemic barriers. This study builds on that understanding by highlighting the ongoing effort of adaptation, code-switching, and strategic navigation that workers from these communities must consistently undertake in vocational settings. It also addresses a limitation of Bourdieu's framework, which often overlooks the agency of individuals disproportionately impacted by racial and ethnic marginalization in challenging inequitable structures (Carales & López, 2020; Reyes & Duran, 2021).

Furthermore, this form of capital complicates traditional notions of "fit" in hiring and promotion, where institutional gatekeepers tend to favor those who already conform to prevailing

workplace norms. The results indicate that workers from the studied population demonstrate a high level of cultural agility, allowing them to leverage systems to their advantage. This highlights Yosso's emphasis on their agency and illustrates how workers from Communities of Color navigate workplace structures not designed for their success. As noted in the literature review, this dynamic has also been observed among faculty of color (Martinez et al., 2017) and family childcare providers (Bromer et al., 2023).

A QuantCrit-Informed Approach

A QuantCrit approach informed the construction of the CWWI and its analytical framework. Although statistical methods like exploratory factor analysis (EFA) and p-values were employed to assess the structure and reliability of the CWWI, these tools were used with a critical perspective that recognizes their limitations. For instance, decisions on factor retention considered both the statistical loadings and their alignment with the theoretical framework of CCW, avoiding reliance solely on numerical thresholds for valid constructs. Furthermore, treating race as an inclusion criterion rather than a fixed variable aligns with QuantCrit's rejection of essentialist racial categories. In the main analyses, participants were not grouped or compared by racial category, as the focus was on collective experiences of marginalization instead of creating binary racial comparisons.

In addition to the theoretical contributions mentioned above, this study addresses the scarcity of quantitative CCW measures (Braun et al., 2017; Dika et al., 2018; Hiramori et al., 2021; Sablan, 2019) by employing a QuantCrit lens—applying quantitative methods to challenge deficit ideologies and amplify historically marginalized voices (Baez, 2007; Covarrubias, 2011; Garcia et al., 2017; Gillborn et al., 2017; Stage, 2007; Stage & Wells, 2014). Unlike previous scales limited to educational contexts (e.g., Braun et al., 2017; Dika et al., 2018; Hiramori et al.,

2021; Sablan, 2019), the CWWI is specifically designed for workplace environments, providing broader applicability. The thorough validation process (e.g., strong factor loadings, alignment with Yosso’s model) ensures reliability while upholding CRT’s commitment to social justice. For instance, incorporating Resistant Capital in a measure directly challenges “neutral” workplace evaluations that overlook systemic oppression, a critique central to CRT (Delgado Bernal, 2002).

Practical Implications

The Cultural Wealth at Work Inventory provides organizations with a framework for recognizing and supporting the cultural wealth that employees from Communities of Color already bring to the workplace. Rather than framing these insights as tools for individual adaptation or employee training, the CWWI can inform employer-facing interventions aimed at transforming workplace structures and cultures.

For instance, Navigational Capital reveals how employees have developed strategies to succeed within systems not originally designed to serve them. These insights highlight the need for organizational reform, rather than further burdening workers with the responsibility of navigating inequity. Institutions can use this information to assess how current policies may obstruct access and inclusion. Additionally, these insights may also help with redesigning their current policies to accommodate diverse modes of success.

Similarly, Linguistic Capital, such as multilingualism or cultural code-switching, should be institutionally valued as a professional asset. Organizations can revise communication norms, performance criteria, and advancement pathways to reflect this value. Mentorship programs that explicitly recognize and support Social Capital (e.g., affinity groups and peer support networks) and Familial Capital (e.g., intergenerational work values, communal resilience) can further

strengthen inclusion efforts, not by “fixing” workers but by elevating the cultural logics they already practice. Likewise, vocational psychologists, HR professionals, and employers should see Aspirational Capital as a strength rather than mistaking it for unrealistic idealism because it can guide resilience interventions and mentorship practices, especially when combined with systemic change efforts.

Additionally, insights from Resistant Capital can offer critical guidance on how employees challenge structural injustice in the workplace. Instead of co-opting these behaviors into superficial diversity trainings, organizations can emphasize these forms of capital to drive anti-racist organizational change, from revising grievance policies to restructuring power dynamics in hiring, evaluation, and promotion.

Lastly, in the field of vocational psychology, the CWWI offers a strengths-based lens that counters deficit models. By identifying cultural assets linked to resilience, advocacy, and professional growth, psychologists can better support workplace belonging and reduce burnout and impostor syndrome. Crucially, these insights should inform both structural-level recommendations and individual coping strategies. By operationalizing Community Cultural Wealth through the CWWI, organizations and psychologists can move beyond superficial diversity metrics and toward systemic transformation. This approach centers equity, honors cultural strengths, and helps build workplaces where individuals from Communities of Color are not just included, but affirmed and empowered.

Limitations and Future Directions

While the Cultural Wealth at Work Inventory (CWWI) makes a significant contribution to the literature, several important limitations must be acknowledged. First, the cultural specificity of the sample (e.g., U.S.-based workers aged 18-64) may restrict the generalizability

of this measure to global contexts. Future research should expand the inventory to include different nationalities and industries, ensuring its applicability across diverse sociocultural and economic environments. Second, future validation studies should investigate age-based differences in the endorsement and salience of cultural wealth constructs, particularly given the variability in life stages and familial and social capital. Third, self-report data often introduces a social desirability bias, as respondents may either overreport or underreport their cultural wealth in the workplace. Incorporating qualitative methods, such as in-depth interviews, could triangulate findings and enhance understanding of how cultural wealth is expressed in the workplace daily. Fourth, this study is cross-sectional, indicating that longitudinal research is necessary to investigate how the dimensions of Community Cultural Wealth interact over time in the workplace, such as whether certain forms of capital become more prominent at different career stages. Finally, an exploratory factor analysis offers initial support for a factor structure. In line with best practices in scale development, a confirmatory factor analysis (CFA) should be performed on a separate sample to validate the CWWI further. A CFA would enable a more rigorous evaluation of the CWWI factor structure and ascertain whether the latent structure identified in the exploratory factor analysis is replicable and theoretically robust.

Conclusion

This research aimed to develop and conduct an exploratory factor analysis on the Cultural Wealth at Work Inventory (CWWI), a new measure designed to operationalize and quantify Yosso's (2005) Community Cultural Wealth Model. The author explored the factor structure of the CWWI, as well as its reliability. The development of the CWWI is grounded in the current Community Cultural Wealth literature and the measurement development literature. As one of the few existing measures of Community Cultural Wealth, the CWWI is advantageous in its

conceptual comprehensiveness. The CWWI may assist future research in articulating the relationship between the distinct forms of capital outlined in the Community Cultural Wealth Model and the relationship between CCW and other culturally relevant constructs (e.g., critical consciousness). Furthermore, the CWWI supports the clinical utility of focusing on the strengths of Communities of Color and the implications of incorporating the assessment of CCW in vocational psychology. Although the current version of the CWWI has several strengths, developing a conceptually and statistically sound measure of CCW is only in the beginning stage. The author hopes the results of this study will aid future researchers in uncovering the many facets of CCW.

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APPENDICES

Appendix A: IRB Letter



Institutional Review Board

uwm.edu/irb
irbinfo@uwm.edu
414-662-3544

Date: May 15, 2024

To: Kelsey Autin
Dept: Educational Psychology
CC: Roberto Garcia - Co-Investigator

IRB #: 24.236

Title: The Development and Exploratory Factor Analysis of Cultural Wealth as a Protective Factor Against Racism in the Workplace: The Cultural Wealth at Work Inventory

The University of Wisconsin-Milwaukee Institutional Review Board has granted your protocol Exempt Status under Category 2 as governed by 45 CFR 46.104(d).

This exemption determination is valid for three years and will expire on **May 15, 2027**. Before the expiration date, you will receive an email explaining how to either keep the study open or close it. If the study is completed before the expiration date, you may notify the IRB by sending an email to irbinfo@uwm.edu.

Any proposed changes to the protocol must be reviewed by the IRB before implementation, unless the change is specifically necessary to eliminate apparent immediate hazards to the subjects.

It is your responsibility to:

- follow the IRB-approved protocol as written
- promptly report unanticipated problems to the IRB
- maintain proper documentation of study records
- ensure that all study staff receive appropriate training as outlined in the protocol
- adhere to the policies and guidelines set forth by the IRB, UWM, and the UW System, and to all applicable state and federal laws

Contact the IRB office if you have any further questions. Thank you for your cooperation and best wishes for a successful project.

Appendix B: List of Expert Reviewers

- Tara J. Yosso
- Jenna R. Sablan
- Nidia Bañuelos
- Daiki Hiramori
- Daniel G. Solórzano
- Nancy Acevedo

Appendix C: Informed Consent

University of Wisconsin-Milwaukee

Informed Consent to Participate in Research

Study title: The Development and Exploratory Factor Analysis of Cultural Wealth as a Protective Factor Against Racism in the Workplace: The Cultural Wealth at Work Inventory

Researcher[s]: Roberto Gabriel Garcia, Counseling Psychology Doctoral Student, Department of Educational Psychology, University of Wisconsin-Milwaukee; Kelsey Autin, Ph.D., Department of Educational Psychology, University of Wisconsin-Milwaukee

We're inviting you to take a research survey. This survey is completely voluntary, and there are no negative consequences if you don't want to take it. If you start the survey, you can change your mind and stop anytime.

What is the purpose of this study?

This study is interested in knowing how workers from a racial or ethnic group in the US use their strengths to thrive at work despite work challenges. This survey specifically asks about six types of strengths: family support, social connections, language skills, knowledge of navigating systems, aspirations, and resilience.

What will I do?

You are invited to participate in an online survey about your work experiences. You will respond to questions about your work experiences.

Risks

Possible risks	How we're minimizing these risks
Some questions may be very personal or upsetting.	You can skip any questions you don't want to answer. If you experience a strong negative reaction to any questions, you are encouraged to stop your participation.
Breach of confidentiality (your data being seen by someone who shouldn't have access to it)	<ul style="list-style-type: none"> • We do not ask for identifying information. We will not know your identity, and thus, the data collected will be anonymous. • We'll store all electronic data on a password-protected computer.
Online data being hacked or intercepted.	This is a risk you experience any time you provide information online. We're using a secure system to collect this data, but we can't completely eliminate this risk.
There is a possibility that CloudResearch could link your Participant ID to other identifying information.	Make sure you have read CloudResearch's participant and privacy agreements to understand how your personal information may be used or disclosed.

There may be risks we don't know about yet. Throughout the study, we'll let you know if we learn anything that might affect your decision to participate.

Other Study Information

Possible benefits	We do not anticipate any direct benefits from participating in this study. However, you may view completing the questionnaire as an opportunity for your voice to be heard and your strengths to be acknowledged. Results from the study may inform policies and clinical interventions to support working adults in their attempts to use their strengths to overcome work challenges and inequality.
Estimated number of participants	300 participants
How long will it take?	The survey will take approximately 15 minutes to complete.
Costs	None.
Compensation	You will be compensated \$1.80 via Connect powered by CloudResearch for completing the survey.
Future research	Your data won't be used or shared for any future research studies.
Removal from the study	Throughout the study, we will be checking to see if you are paying attention. If you fail one of our attention checks, you will be removed from the study. We will not reject any participants, so no participant will be at risk of their approval rating going down. If you do not answer the attention checks correctly, you will not receive compensation.

Confidentiality and Data Security

We will not be collecting any personally identifiable information.

Where will data be stored?	Data will be kept on a desktop computer at UWM and UWM's cloud storage device.
How long will it be kept?	5 years

Who can see my data?	Why?	Type of Data
The researchers	To analyze the data and conduct the study	Anonymous survey responses
The IRB (Institutional Review Board) at UWM The Office for Human Research Protections (OHRP) or other federal agencies	To ensure we're following laws and ethical guidelines	Anonymous survey responses
Anyone (public)	If we share our findings in publications or presentations	Anonymous aggregate survey responses
Connect powered by CloudResearch	Because they own the Connect internal software, and to issue payment	<ul style="list-style-type: none"> • Connect Participant IDs

		<ul style="list-style-type: none"> • There is a possibility that CloudResearch could link your Participant ID to other identifying information.
--	--	--

Contact Information:

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For questions about your rights as a research participant	IRB (Institutional Review Board; provides ethics oversight)	414-662-3544 / irbinfo@uwm.edu
For complaints or problems	Kelsey Autin, PhD Roberto Garcia	autin@uwm.edu (email) garciarg@uwm.edu (email)

Please print or save this screen if you want to be able to access the information later.

IRB #: Study 24.236-UWM

IRB Approval Date: May 15, 2024

How do I agree to be in the study?

Your participation is completely voluntary, and you can withdraw at any time. If you change

your mind and decide not to participate, you can just close your web browser.

To take this survey, you must be:

- At least 18 years old
- Full-time or part-time employed in the United States within the past 12 months
- Belonging to one of a list of racial or ethnic groups in the US (e.g., African/African-American/Black; American Indian/Native American/First Nation; Arab American/Middle Eastern; Asian/Asian American; Asian Indian; Hispanic/Latina/o American; Pacific Islander)
- English-Speaking

If you would like to participate in this study, please click the Agree button and begin answering the questions. If you change your mind and decide not to participate, you can close your web browser.

Appendix D: Screening Questions

Screening questions. Please respond to the following questions.

Question	Response Options	
Are you between the ages of 18 and 64?	Yes	No
Are you currently employed?	Yes	No
Do you identify with any of these racial or ethnic groups? (e.g., African/African-American/Black; American Indian/Native American/First Nation; Arab American/Middle Eastern; Asian/Asian American; Asian Indian; Hispanic/Latina/o/x American; Pacific Islander)	Yes	No

Appendix E: Demographics

<u>Question</u>	<u>Response Options</u>
How old are you?	Free Response
How would you identify your gender? Please specify further if your identity is not captured fully with these categories.	Man Woman Transman Transwoman Other (please describe): _____ Prefer not to say
What is your race/ethnicity? (You may select more than one)	African/African-American/Black American Indian/Native American/First Nation Arab American/Middle Eastern Asian/Asian American Asian Indian Hispanic/Latina/o American Pacific Islander White/European American/Caucasian Other (please describe): _____
How would you identify your sexual orientation (please check the best descriptor):	Exclusively lesbian or gay Mostly lesbian or gay Bisexual

	<p>Mostly Heterosexual</p> <p>Exclusively Heterosexual</p> <p>Asexual</p> <p>Other. Please describe: _____</p>
<p>What is the highest level of education you have completed?</p>	<p>Less than high school</p> <p>High school or GED</p> <p>Associate or 2-year degree</p> <p>Some college</p> <p>Bachelors degree</p> <p>Masters degree</p> <p>Professional degree (MD, JD, PhD)</p>
<p>What is your employment status? (Select all that apply)</p>	<p>Employed part-time</p> <p>Employed full-time</p> <p>Part-time student</p> <p>Full-time student</p> <p>Military (reservist)</p> <p>Military (active duty)</p>
<p>Last year, what was your total personal income before taxes from all sources?</p>	<p>\$10,000 - \$19,999</p> <p>\$20,000 - \$29,999</p> <p>\$30,000 - \$39,999</p> <p>\$40,000 - \$49,999</p> <p>\$50,000 - \$59,999</p>

	<p>\$60,000 - \$69,999</p> <p>\$70,000 - \$79,999</p> <p>\$80,000 - \$89,999</p> <p>\$90,000 - \$99,999</p> <p>\$100,00 - \$149,999</p> <p>\$150,000 or more</p>
<p>What socio-economic class have you spent the majority of your life in?</p>	<p>Lower class</p> <p>Working class</p> <p>Middle class</p> <p>Upper class</p> <p>Other (please describe): _____</p>
<p>What is your ZIP code?</p>	<p>Free Response</p>

Think of this ladder as representing where people stand in the United States.

At the **top** of the ladder are the people who are the best off – those who have the most money, the most education and the most respected jobs. At the **bottom** are the people who are the worst off – who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please place a large "X" on the rung where you think you stand at this time in your life, relative to other people in the United States.



Think of this ladder as representing where people stand in the United States.

At the top of the ladder are the people who are the best off – those who have the most money, the most education, and the most respected job. At the bottom are the people who are the worst off – who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the

Indicate where you fall on the ladder above

- 10. Top rung
- 9
- 8
- 7
- 6
- 5
- 4
- 3
- 2
- 1. Bottom rung

people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please select the rung where you think you stand at this time in your life, relative to other people in the United States.

Appendix F: CCWI Items

Aspirational Capital

AC1 I pursue my goals in the workplace.

AC2 I can maintain my professional goals despite facing challenges at work.*

AC3 I remain hopeful about my future career opportunities.

AC4 I am motivated to overcome work-related obstacles to achieve my aspirations.

AC5 Challenges at work do not deter my dreams of success.

AC6 I have a clear vision of my long-term career goals.

AC7 My career goals motivate me to overcome challenges.

AC8 I bounce back quickly from setbacks in my professional life.

AC9 I see setbacks as temporary and continue working towards my goals.

AC10 I can sustain my dreams for the future while working through work challenges.

AC11 My aspirations remain intact despite the demands of my job.

Linguistic Capital

LC1 I feel comfortable speaking in different styles of communication with my co-workers.

LC2 I understand the work-related language my co-workers use.

LC3 I can switch my style of communication depending on the audience.

LC4 My communication skills help me make more meaningful contributions at work.

LC5 I am skilled at navigating cultural nuances in my workplace.

LC6 I am skilled at adapting my communication style in my workplace.

LC7 Using my language skills, I can bring people together to work well with each other.

LC8 My skill to talk well in different ways helps make communication easier at my job.

LC9 I use my linguistic skills to creatively address challenges in my work environment.

Social Capital

SC1 I am confident in my ability to network in the workplace.*

SC2 I feel comfortable connecting with my co-workers for support.

SC3 My friends encourage me to take full advantage of my career opportunities.

SC4 I participate in groups/activities outside of work (church, music, sports, etc.).*

SC5 I participate in a support group at work (e.g., an affinity group).*

SC6 My relationships with coworkers contribute to a positive work environment.

SC7 My relationships with coworkers contribute to fostering a sense of community.

SC8 My coworkers are valuable members of my professional network.

SC9 My social support at work helps me navigate workplace policies and procedures.

SC10 I know people in my community who support my professional growth and development.

SC11 I have a network of coworkers who can help me when facing work-related challenges.

SC12 I have mentors in my community who guide me through work challenges.*

SC13 I have sought out mentors in the workplace.*

Familial Capital

FC1 Knowledge and experiences from my family help me bring a unique perspective to my work.

FC2 My family members have passed down valuable lessons about work.

FC3 I have strong career role models in my family.

FC4 My family history guides my choices about work.

FC5 Family members have taught me about “good” and “bad” kinds of work.

FC6 Specific kinds of jobs have lots of meaning in my family.

FC7 My family has a meaningful history of working specific jobs.*

FC8 My family has passed down important values about work.

FC9 My family supports my work choices.*

FC10 My family has taught me how to make choices about work.

FC11 I have gained wisdom from my family about how to navigate work.*

FC12 The knowledge passed down through my family has helped me work better with coworkers from different backgrounds.*

Navigational Capital

NC1 I know how to find resources to help me succeed at work.

NC2 Even when work is tough, I engage in many parts of my job. That includes doing tasks, working on projects, and teaming up with coworkers.*

NC3 My work environment does not support me, but I know how to succeed there.*

NC4 I learned how to blend into my workplace so I do not get in trouble.*

NC5 To be more approachable, I learned how to make myself “more presentable” at work (e.g., dress, behavior, or manner of speaking).*

NC6 I have learned to navigate my work’s professional culture.*

NC7 I work hard to present myself in a way that aligns with my job.*

NC8 I do specific things, like dressing a certain way or changing how I speak, to better fit in at work.*

NC9 I feel confident navigating social institutions when faced with workplace challenges.

NC10 I can maneuver through workplace structures that were not initially designed for people like me.

NC11 I can adapt to the expectations and norms of my workplace, even if they are not inclusive.

NC12 I am good at adapting to how things work at work, even when I do not always think about everyone's different backgrounds.

Resistant Capital

RC1 When faced with workplace inequality, I actively challenge it.

RC2 I can navigate discrimination in my workplace.

RC3 I am confident in criticizing unfair workplace policies and practices.

RC4 My ability to challenge authority contributes to a more equitable work environment.

RC5 I seek out opportunities to address instances of injustice within my workplace.

RC6 I have knowledge and skills that help me speak up against unfair treatment at work.

RC7 I proactively promote equality and fairness within my workplace.

RC8 My behavior at work reflects my commitment to confronting discrimination.

RC9 I create a work environment where opposition to inequality is valued.

RC10 I use my knowledge and skills to help my colleagues create an equitable work environment.

Asterisked items were removed during the data analysis process in Chapter 4

Appendix G: Descriptive Statistics for CWWI Initial Items

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
AC1	243	4.56	1.128	-.662	.156	-.066	.311
AC2	243	4.73	1.063	-.779	.156	.474	.311
AC3	243	4.74	1.175	-.894	.156	.417	.311
AC4	243	4.70	1.127	-.810	.156	.263	.311
AC5	243	4.58	1.180	-.744	.156	.009	.311
AC6	243	4.25	1.401	-.575	.156	-.407	.311
AC7	243	4.46	1.302	-.734	.156	.017	.311
AC8	243	4.45	1.253	-.721	.156	.168	.311
AC9	243	4.61	1.205	-.747	.156	-.050	.311
AC10	243	4.59	1.062	-.578	.156	.309	.311
AC11	243	4.59	1.194	-.807	.156	.247	.311
LC1	243	4.54	1.200	-.817	.156	.284	.311
LC2	243	4.83	1.012	-.884	.156	.750	.311
LC3	243	4.89	1.128	-1.190	.156	1.476	.311
LC4	243	4.73	1.101	-.931	.156	.681	.311
LC5	243	4.68	1.089	-.631	.156	.038	.311
LC6	243	4.79	1.117	-1.112	.156	1.315	.311
LC7	243	4.56	1.273	-.986	.156	.660	.311
LC8	243	4.68	1.137	-1.078	.156	1.251	.311

LC9	243	4.48	1.257	-.910	.156	.724	.311
SC1	243	4.18	1.405	-.641	.156	-.257	.311
SC2	243	4.28	1.346	-.575	.156	-.402	.311
SC3	243	4.17	1.408	-.473	.156	-.550	.311
SC4	243	3.37	1.635	.087	.156	-1.153	.311
SC5	243	2.56	1.676	.662	.156	-.929	.311
SC6	243	4.58	1.180	-.911	.156	.267	.311
SC7	243	4.34	1.349	-.796	.156	-.083	.311
SC8	243	4.47	1.309	-.841	.156	.049	.311
SC9	243	4.28	1.331	-.645	.156	-.211	.311
SC10	243	4.05	1.519	-.484	.156	-.745	.311
SC11	243	4.29	1.376	-.740	.156	-.142	.311
SC12	243	3.59	1.711	-.137	.156	-1.243	.311
SC13	243	3.55	1.735	-.121	.156	-1.296	.311
FC1	243	4.33	1.426	-.681	.156	-.439	.311
FC2	243	4.29	1.502	-.663	.156	-.510	.311
FC3	243	3.94	1.712	-.423	.156	-1.125	.311
FC4	243	3.83	1.591	-.371	.156	-.930	.311
FC5	243	4.15	1.539	-.580	.156	-.644	.311
FC6	243	3.79	1.676	-.409	.156	-1.025	.311
FC7	243	3.61	1.698	-.247	.156	-1.196	.311
FC8	243	4.31	1.567	-.757	.156	-.516	.311

FC9	243	4.66	1.277	-.934	.156	.322	.311
FC10	243	3.96	1.575	-.412	.156	-.885	.311
FC11	243	4.09	1.555	-.617	.156	-.675	.311
FC12	243	3.98	1.686	-.530	.156	-.954	.311
NC1	243	4.52	1.257	-.963	.156	.535	.311
NC2	243	4.63	1.107	-.748	.156	.129	.311
NC3	243	3.11	1.592	.207	.156	-1.148	.311
NC4	243	4.11	1.401	-.519	.156	-.489	.311
NC5	243	4.32	1.383	-.735	.156	-.222	.311
NC6	243	4.63	1.140	-.798	.156	.240	.311
NC7	243	4.59	1.214	-.672	.156	-.306	.311
NC8	243	4.15	1.482	-.610	.156	-.510	.311
NC9	243	4.26	1.356	-.601	.156	-.532	.311
NC10	243	4.31	1.272	-.572	.156	-.229	.311
NC11	243	4.42	1.177	-.598	.156	.029	.311
NC12	243	4.45	1.125	-.530	.156	-.083	.311
RC1	243	4.14	1.512	-.507	.156	-.687	.311
RC2	243	4.36	1.346	-.570	.156	-.380	.311
RC3	243	4.23	1.441	-.561	.156	-.475	.311
RC4	243	3.96	1.596	-.314	.156	-.985	.311
RC5	243	3.63	1.642	-.153	.156	-1.116	.311
RC6	243	4.13	1.533	-.501	.156	-.753	.311

RC7	243	4.28	1.487	-.703	.156	-.345	.311
RC8	243	4.09	1.501	-.474	.156	-.708	.311
RC9	243	4.09	1.495	-.530	.156	-.623	.311
RC10	243	4.38	1.353	-.673	.156	-.215	.311
Valid N (listwise)	243						

Appendix I: Parallel Analysis program.

set mxloops=9000 printback=off width=80 seed = 1953125.

matrix.

* enter your specifications here.

compute ncases = 500.

compute nvars = 9.

compute ndatsets = 100.

compute percent = 95.

* Specify the desired kind of parallel analysis, where:

1 = principal components analysis

2 = principal axis/common factor analysis.

compute kind = 2 .

***** End of user specifications. *****

* principal components analysis.

do if (kind = 1).

compute evals = make(nvars,ndatsets,-9999).

compute nm1 = 1 / (ncases-1).

loop #nds = 1 to ndatsets.

```

compute x = sqrt(2 * (ln(uniform(ncases,nvars)) * -1) ) &*
        cos(6.283185 * uniform(ncases,nvars) ).
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute evals(:,#nds) = eval(d * vcv * d).

end loop.

end if.

* principal axis / common factor analysis with SMCs on the diagonal.
do if (kind = 2).

compute evals = make(nvars,ndatsets,-9999).

compute nm1 = 1 / (ncases-1).

loop #nds = 1 to ndatsets.

compute x = sqrt(2 * (ln(uniform(ncases,nvars)) * -1) ) &*
        cos(6.283185 * uniform(ncases,nvars) ).

compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).

compute d = inv(mdiag(sqrt(diag(vcv)))).

compute r = d * vcv * d.

compute smc = 1 - (1 &/ diag(inv(r)) ).

call setdiag(r,smc).

compute evals(:,#nds) = eval(r).

end loop.

end if.

```

* identifying the eigenvalues corresponding to the desired percentile.

```
compute num = rnd((percent*ndatsets)/100).
```

```
compute results = { t(1:nvars), t(1:nvars), t(1:nvars) }.
```

```
loop #root = 1 to nvars.
```

```
compute ranks = rnkorder(evals(#root,:)).
```

```
loop #col = 1 to ndatsets.
```

```
do if (ranks(1,#col) = num).
```

```
compute results(#root,3) = evals(#root,#col).
```

```
break.
```

```
end if.
```

```
end loop.
```

```
end loop.
```

```
compute results(:,2) = rsum(evals) / ndatsets.
```

```
print /title="PARALLEL ANALYSIS:".
```

```
do if (kind = 1).
```

```
print /title="Principal Components".
```

```
else if (kind = 2).
```

```
print /title="Principal Axis / Common Factor Analysis".
```

```
end if.
```

```
compute specifs = {ncases; nvars; ndatsets; percent}.
```

```
print specifs /title="Specifications for this Run:"
```

```

/rlabels="Ncases" "Nvars" "Ndatsets" "Percent".

print results /title="Random Data Eigenvalues"

/clabels="Root" "Means" "Prcntyle" /format "f12.6".

do if (kind = 2).

print / space = 1.

print /title="Compare the random data eigenvalues to the".

print /title="real-data eigenvalues that are obtained from a".

print /title="Common Factor Analysis in which the # of factors".

print /title="extracted equals the # of variables/items, and the".

print /title="number of iterations is fixed at zero;".

print /title="To obtain these real-data values using SPSS, see the".

print /title="sample commands at the end of the parallel.sps program,".

print /title="or use the rawpar.sps program.".

print / space = 1.

print /title="Warning: Parallel analyses of adjusted correlation matrices".

print /title="eg, with SMCs on the diagonal, tend to indicate more factors".

print /title="than warranted (Buja, A., & Eyuboglu, N., 1992, Remarks on parallel".

print /title="analysis. Multivariate Behavioral Research, 27, 509-540.).".

print /title="The eigenvalues for trivial, negligible factors in the real".

print /title="data commonly surpass corresponding random data eigenvalues".

print /title="for the same roots. The eigenvalues from parallel analyses".

print /title="can be used to determine the real data eigenvalues that are".

```

```
print /title="beyond chance, but additional procedures should then be used".
print /title="to trim trivial factors.".
print / space = 1.
print /title="Principal components eigenvalues are often used to determine".
print /title="the number of common factors. This is the default in most".
print /title="statistical software packages, and it is the primary practice".
print /title="in the literature. It is also the method used by many factor".
print /title="analysis experts, including Cattell, who often examined".
print /title="principal components eigenvalues in his scree plots to determine".
print /title="the number of common factors. But others believe this common".
print /title="practice is wrong. Principal components eigenvalues are based".
print /title="on all of the variance in correlation matrices, including both".
print /title="the variance that is shared among variables and the variances".
print /title="that are unique to the variables. In contrast, principal".
print /title="axis eigenvalues are based solely on the shared variance".
print /title="among the variables. The two procedures are qualitatively".
print /title="different. Some therefore claim that the eigenvalues from one".
print /title="extraction method should not be used to determine".
print /title="the number of factors for the other extraction method.".
print /title="The issue remains neglected and unsettled.".

end if.
```

end matrix.

* Commands for obtaining the necessary real-data eigenvalues for

principal axis / common factor analysis using SPSS;

make sure to insert valid filenames/locations, and

remove the '*' from the first columns.

* correlations var1 to var20 / matrix out ('filename') / missing = listwise.

* matrix.

* MGET /type= corr /file='filename' .

* compute smc = 1 - (1 &/ diag(inv(cr))).

* call setdiag(cr,smc).

* compute evals = eval(cr).

* print { t(1:nrow(cr)) , evals }

/title="Raw Data Eigenvalues"

/clabels="Root" "Eigen." /format "f12.6".

* end matrix.

Appendix J: Communalities

	Initial	Extraction
AC1	.636	.548
AC3	.702	.603
AC4	.769	.691
AC5	.709	.634
AC6	.692	.530
AC7	.779	.693
AC8	.702	.604
AC9	.758	.686
AC10	.810	.776
AC11	.762	.734
LC1	.647	.573
LC2	.625	.465
LC3	.682	.611
LC4	.733	.694
LC5	.704	.636
LC6	.778	.748
LC7	.756	.603
LC8	.793	.703
LC9	.709	.589

SC2	.698	.584
SC3	.665	.589
SC6	.762	.682
SC7	.810	.777
SC8	.748	.713
SC9	.710	.692
SC10	.617	.491
SC11	.671	.609
FC1	.717	.592
FC2	.771	.711
FC3	.717	.682
FC4	.680	.616
FC5	.689	.638
FC6	.520	.437
FC8	.739	.662
FC10	.721	.712
NC1	.620	.572
NC9	.729	.686
NC10	.710	.693
NC11	.730	.657
NC12	.632	.525

RC1	.750	.654
RC2	.683	.595
RC3	.768	.677
RC4	.811	.753
RC5	.769	.739
RC6	.755	.702
RC7	.745	.637
RC8	.829	.759
RC9	.761	.708
RC10	.777	.648

Extraction Method: Principal Axis

Factoring.