

*El Ingenio Mexicano: A cultural value among Mexican/Mexican Americans*

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## Dedication

This dissertation is dedicated to my parents who taught me about *el ingenio mexicano* and showed me the strength and resilience of Mexican/Mexican Americans. This is also dedicated to my grandma, Betty, who would have loved to join us in talking about the strength of our community. Lastly, this dissertation is dedicated to the Mexican/Mexican American community who has had to demonstrate *el ingenio mexicano para salir adelante*.

## Abstract

There is a rich history of *el ingenio mexicano* [Mexican ingenuity], defined as finding solutions to problems in creative, inventive, and unconventional ways that are often necessitated by limited finances, formal education, materials, and resources. Despite this strong emphasis on *ingenio* in the Mexican/Mexican American community, there has been little research examining it. I sought to explore *ingenio* as a Mexican cultural value that is important to understanding Mexican/Mexican American well-being and adjustment. This study aimed to 1) formulate an operational definition of *ingenio*; 2) develop a new self-report measure of *ingenio* as a cultural value; and 3) test the validity of the measure in Mexican and Mexican American samples. Study One used thematic analysis of qualitative interviews ( $N = 12$ ) with Mexican and Mexican American adults to create an operational definition of *ingenio* and generate initial scale items. Items were reviewed by a panel of three Mexican American psychologists and three community members and subsequently revised. Study Two focused on testing the initial scale validation to identify the number of factors and reduce items with a Mexican/Mexican American sample ( $N = 266$ ) recruited from Prolific. Additionally, Study Two explored the psychometric properties of the scale including the reliability of subscale scores based on the three selected factors and concurrent, incremental, and divergent validity of the overall *Ingenio* Scale. Study Three examined the psychometric properties of the *Ingenio* Scale using a sample of Mexican nationals ( $N = 100$ ) residing in Mexico. These studies demonstrate the importance of *ingenio* as a cultural value and the psychometric properties of the proposed cultural value.

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## Introduction

*“If there's something that distinguishes us as Mexican, it is our **ingenio**. If there's a problem, we don't have fear. We find a way to solve it. If something gets broken, we find a way to fix it. If we're missing something, we don't give up until we find something to replace it with. It's as if our ability to use our **ingenio** with what we have at hand is in our genes.”*

(Mena, n.d.)

There is a rich history of Mexican and Mexican American *ingenio* [ingenuity], or finding solutions to problems in creative, inventive, and unconventional ways that are often necessitated by limited finances, formal education, materials, and resources. Conducting a Google search for “*el ingenio mexicano*” [Mexican ingenuity] yields about 5.65 million results, consisting of over 56,000 news articles and more than 414,000 YouTube videos. The articles highlight *el ingenio mexicano* in the film industry, businesses, day-to-day activities, during difficult events, and other unexpected circumstances. Alongside the headlines, there are descriptions of *ingenio* that highlights its utility, value, and uniqueness to Mexicans. The videos, articles, and descriptions of *ingenio* include phrases such as “limitless,” “main trait of Mexicans,” “no comparison for *ingenio mexicano*,” and “¡*Qué viva el ingenio mexicano!*” [Long live Mexican ingenuity!]. These examples highlight the strong value and collective pride the Mexican/Mexican American community feels about *ingenio*.

While this type of resourcefulness or problem solving may be viewed as unnecessary in some communities, the Mexican/Mexican American community finds collective value and takes cultural pride in *ingenio*. There has been little psychological

research examining *el ingenio mexicano* despite its strong emphasis in the in the Mexican/Mexican American community. I seek to explore *ingenio* as a Mexican cultural value, adding it to those already established in the psychological literature, such as *familismo*, *machismo*, and *marianismo*. This study aims to 1) identify an operational definition of *el ingenio mexicano*; 2) develop a new self-report measure, *Ingenio Scale*, of *ingenio* as a Mexican/Mexican American cultural value; and 3) test the reliability and validity of the measure in Mexican and Mexican American samples.

### **Cultural and Historical Context**

*Ingenio* has cultural meaning among Mexicans and Mexican Americans demonstrated by the creative solutions to problems in everyday life. However, little to no research has examined *ingenio* as a cultural value. To understand how *ingenio* functions as a cultural value, the cultural and historical context within this population must be examined and understood. Context related to Mexican history such as the economic oppression of certain groups in Mexico and immigration factors through time can be helpful to understand the underlying societal and cultural values that may shift or stay constant across generations. The historical and cultural context provide insight on what may have sparked *ingenio* to be present and continue to be valued among Mexicans. Additionally, factors related to the well-being and adjustment of Mexican and Mexican Americans provide a better understanding of how *ingenio* may be related to research conducted thus far among this cultural group.

### ***Examining Mexico's History and Economic Oppression***

Mexico's history provides a foundation for understanding Mexican and Mexican American communities, including the history of Mexican identity and values. Many

historians name the Mexican Revolution as one of the strongest influences on Mexico's current national identity and culture (Bailey, 1978; Brewster, 2007; Valdés, 1988). The Mexican Revolution in 1910 marked a rise in *campesinos* [landless peasants], often of indigenous heritage, to fight for their rights against the *hacendados* [landowners] (Benjamin, 2000). The *campesinos* were under-resourced, lacked formal education, and had limited rights (Waterbury, 1975). Yet, leaders like Emiliano Zapata found ways to unite *campesinos* to fight for the empowerment of the most vulnerable. This narrative of the Mexican Revolution echoed previous struggles Mexicans faced, including gaining independence from Spain and the struggle indigenous populations faced against European colonizers (Benjamin, 2000). The collective narrative of overcoming adversity continues to be celebrated as a sign of the resilience and strength of Mexicans (Barrón, 2019).

Mexico's history of strength in overcoming obstacles remains an important component of socialization across generations. Mexicans continue to face and overcome obstacles including the limited economic opportunities in Mexico resulting from its history of colonization (Rainoff, 2011). These restricted opportunities have reinforced *el ingenio mexicano* as a cultural value. Currently, Mexico's GDP ranks fifteenth globally (5.6% that of the U.S.), and its economic development has been impeded by corruption within the Mexican government (World Bank Group, 2021). The lack of economic prosperity and lack of trust in the government to provide opportunities have motivated individuals to create their own opportunities (Abarca, 2007; Durand, Massey, & Zenteno, 2001; Molina, 2011; Wang & Lofstrom, 2020) by starting businesses, creating new jobs within their community, or emigrating. Migration of laborers from Mexico to the U.S. rose sharply between 1909 to the 1920s (Taylor, 1930), and lack of economic opportunity

in Mexico continues to be a main driving factor for immigration to the U.S. today (Durand et al., 2001; Naugler & Conroy, 2018).

### ***Mexican Immigrants in the United States***

Mexican immigrants cite a search for a better life and a better financial situation as the main reasons for immigrating to the United States. Yet, according to Pew Research Center, around 20% of U.S.-born and foreign-born Mexicans live in poverty, and the median annual earnings for Mexicans in the U.S. was about \$32,000 in 2017 (Noe-Bustamante, Flores, & Shah, 2019). Mexican workers in the U.S. are systemically disadvantaged in the labor market, with their work prospects limited to low-status, precarious jobs due to legal immigration status, English language skills, and job requirements (Abrego, 2010; Bacallao & Smokowski, 2007; Cho, 2017; Hall et al., 2019). Economic oppression of Mexican/Mexican Americans in the United States may also contribute to increased value placed on *ingenio*. For individuals of lower socioeconomic status, a lack of access to material and financial resources makes *ingenio* a necessity to survive and succeed in the United States.

The historical context and economic factors are important to examine as they influence the adjustment and well-being of individuals, families, and communities. Bronfenbrenner (1994) conceptualized historical and economic factors as indirect influences on the development of children, families, and other systems. Cultural psychologists, however, have suggested that broader cultural factors such as historical events and economic factors need to be examined as direct influences on the development of individuals and families (Fish & Syed, 2018; Juang et al. 2012). Thus, to understand the implications of the historical context on individual adjustment, sociocultural factors

such as cultural values, ethnic identity, and other adjustment processes must be examined.

### *Cultural Values*

Research among Mexicans and Mexican Americans focuses on salient cultural values seen as strengths within the community (Mendez-Negrete & Saldana, 2004). Broadly, a cultural value refers to ideals held by a cultural group or in this case, an ethnic group (Albarracin & Shavitt et al., 2018; Schwartz, 2006). Scholars have generally examined five cultural values among Mexican/Mexican Americans: 1) *familismo* [familism], 2) *machismo* (masculine gender role) and *marianismo* (feminine gender role), 3) *respeto* [respect], 4) religion, and 5) *simpatía* [harmony] (Acevedo, 2020; Caldera et al., 2015; Knight et al., 2010; Morgan Consoli & Llamas, 2013). *Familismo* represents a strong adherence to one's family which includes providing and receiving support from family, a strong desire to bring honor to one's family, and a sense of connectedness with both immediate and extended family (Calzada et al., 2013; Fuligni & Pederson, 2002; Gonzales, Knight, Birman, & Sirolli, 2004; Romero & Ruiz, 2007). *Machismo* and *marianismo* describe the two gender roles traditionally examined among Mexicans and Mexican Americans. *Machismo* asserts that men should be strong, providers of the family, demanding, and traditionalist (Fragoso & Kashubeck, 2000; Knight et al., 2010). In contrast, *marianismo* delineates the ideals assigned to women: pure, sensitive, and virtuous (Castillo et al., 2010). *Respeto* refers to the level of obedience and respect that individuals should demonstrate towards their elders, extended family, and authority figures to maintain a harmonious relationship within the family and community (Welland & Ribner, 2010). Religion is strongly valued in Mexican culture, with an emphasis on

Christian spiritual beliefs and faith in God (Knight et al., 2010). Finally, *simpatía* emphasizes maintaining social harmony through frequent interaction with others and avoiding conflict and negativity (Acevedo et al., 2020; Ramírez-Esparza, Gosling, & Pennebaker, 2008; Triandis et al., 1984).

Cultural values among Mexican/Mexican Americans are typically examined as cultural strengths (Knight et al., 2010; Morgan Consoli et al., 2016). For example, *respeto* promotes resilience and academic engagement in Mexican American students (Morgan Consoli & Llamas, 2013; Géman et al., 2009). Mexican Americans identified *respeto* as an important motivator to overcome difficulties in their life (Morgan Consoli & Llamas, 2013). Similarly, familism protects individuals from risky behaviors such as externalizing behaviors in the presence of deviant peers (Germán et al., 2009). Familism also is related to prosocial tendencies, higher self-esteem, an increased sense of belonging, and stronger family connections (Armenta et al., 2011; Smokowski et al., 2009; Stein et al., 2014; Updegraff et al., 2005). Familism appears to influence individuals to provide for their family despite difficult circumstances. Cultural values like familism motivate individuals to help their family in any possible way similar to *ingenio* as individuals may find themselves engaging in *ingenio* for the sake of the family.

### ***Ingenio as a Cultural Value***

There has been extensive research examining the impact of cultural values among Mexicans and Mexican Americans given the importance of these factors to this community. However, *el ingenio mexicano* has not been included among these cultural values, despite its prevalence in Mexican/Mexican American cultural representations such as media articles, videos, inventions, and art. Like other cultural values, such as

familism and respect, *ingenio* exists as both a behavior and a belief honored and emphasized in the collective Mexican/Mexican American community. It is critical to also examine *ingenio* in the context of other features of broader cultural values.

Schwartz (2006) outlines the basic features of cultural values. First, cultural values influence affect. For example, an individual may have an emotional response when others do not adhere to values that are important to them or are threatening those values. Second, cultural values influence behavior. Whether a person decides to engage in behavior that is in line with a cultural value depends on the level of importance of this cultural value to the individual. Lastly, a cultural value has the ability to transcend situations. For example, the value of familism does not only manifest when the individual is at home with their family, but also plays a role when they are at work or school. Schwartz's definition, however, notably only describes cultural values as they appear in the present, without consideration of their cultural underpinnings or how they develop over generations, including how they shift following immigration to a new culture and cultural values. In the case of Mexican Americans, cultural values are shaped by acculturation to mainstream US culture and negotiation of ethnic identity within that context.

### ***Acculturation and Ethnic Identity***

Psychologists have examined the cultural experiences of Mexicans following immigration including how it impacts their cultural values and ethnic identity as they are exposed to a new culture. Immigrants must undergo a process of acculturation in which they adapt to being in a new culture, including learning a new language, facing economic hardship, balancing two different cultures, and experiencing discrimination, which can

contribute to acculturative stress (Berry, 1997). In families, children adapt to the host culture at a faster rate than parents, which can result in family conflict, as parents seek to retain their heritage cultural values while the host culture becomes more normative for the children (Marsiglia et al., 2018). Children of immigrants, or second-generation immigrants, are less likely to endorse traditional cultural values and more likely to adhere to mainstream U.S. culture than the first generation (Vega & Gil, 1999). This acculturation gap between immigrant parents and children has been typically found to related to negative outcomes (Lui, 2015); however, other studies examining the impact of the acculturation gap among Mexican families have found that it is unrelated to negative outcomes (Lau, et al. 2005; Marsiglia et al., 2014), as parents find it helpful to have their children navigate the new culture with them (Bacallao & Smokowski, 2006). This acculturation gap is relevant in the discussion of cultural values among a sample of Mexican Americans that is diverse in generational status, as more acculturated individuals may find Mexican cultural values less personally relevant. In the context of *ingenio*, it may mean that individuals who are more acculturated may be less likely to adhere to *ingenio* or find it to be as salient in their life. Meanwhile, individuals who are less acculturated may have a stronger connection to their cultural values including *ingenio*.

Despite individual variation in adherence to traditional Mexican culture, it is important to consider Mexican immigrants in the United States as part of a larger Mexican cultural community. Mexican immigrants carry with them their traditional cultural values and socialize subsequent generations with these values. Although second- and later generation immigrants may adopt mainstream cultural values more strongly,



their heritage culture remains the context of their socialization and development. Many maintain some level of connection to their heritage culture, which contributes to their individual ethnic identity development and adjustment. Thus, the presence of Mexican cultural values remains important to examine among Mexican immigrants and subsequent generations of Mexican Americans.

Research among Mexican/Mexican Americans has also examined the normative trajectory of ethnic identity development as a critical point of development among ethnic minorities. Ethnic identity refers to the beliefs, attitudes, and behaviors related to belonging to an ethnic group (Phinney, 1990; Umaña-Taylor et al., 2014). Generally, having a strong and positive ethnic identity is related to better outcomes among ethnic minorities, including Latine Americans (Rivas-Drake et al., 2014). For Mexican-origin adolescents, a positive ethnic identity has been shown to be protective, buffering the negative effects of discrimination (Iturbide et al., 2009; Umaña-Taylor & Guimond, 2010; Umaña-Taylor et al., 2012). Additionally, factors such as cultural values and family ethnic socialization (the process by which families teach about traditions, beliefs, and heritage culture) can positively influence ethnic identity. Among Mexican American families, adhering to Mexican American cultural values was related to a higher sense of ethnic identity (Knight et al., 2011; Streit et al., 2018). Overall, there is a close relationship between cultural values and a strong and positive ethnic identity. As such, one would expect *ingenio* to be closely related to one's ethnic identity.

### **The Present Study**

This study seeks to describe *ingenio* as a cultural value in terms of its historical background as well as the components delineated by Schwartz (2006): affective valence,

salience to the individual, influence on behaviors, and presence across domains. As *ingenio* has not previously been empirically studied, three studies were conducted examining the presence of *ingenio* in samples of Mexicans and Mexican Americans. Study One was conducted in an exploratory manner to examine the operational definition of *ingenio*. Mexican and Mexican American participants completed qualitative interviews about their understanding of *ingenio*. Based on these interviews, an operational definition was developed and an initial item pool for the *Ingenio* Scale was created. Study Two tested the items that were developed and revised in Study One, examined initial psychometric features of the scale, including factor analysis, and tested the scale's model fit and reliability of scale scores. Study Two further examined the psychometric construct validity of the *Ingenio* Scale by testing concurrent, incremental, and divergent validity. Study Three examined the psychometrics properties of the *Ingenio* Scale and validity in a sample of Mexican nationals living in Mexico. Based on these analyses, a final *Ingenio* Scale was developed.

### **Study One**

The purpose of Study One was to conduct interviews to develop an operational definition of *ingenio* and to create items for a measure of *ingenio* as a cultural value. Due to a lack of previous research on *ingenio*, an inductive approach based on the interviews was chosen so that items would be developed from the input of the relevant cultural community. Additionally, this study was not pre-registered. With Latine populations, qualitative methods to capture the experiences and meaning are especially relevant; for example, Delgado-Romero and colleagues (2018) describe how qualitative methods fit with central values for Latine participants such as *plática* [small talk], *dichos* [sayings],

and *testimonios* [testimony]. Thus, a qualitative, inductive approach to the initial scale development was culturally appropriate for the sample and best for capturing the perspectives and experiences of the community.

## **Method**

### ***Sampling Procedure***

**Eligibility.** Participants were eligible to participate in the study if they met the following criteria: 1) were born in Mexico or were born in the United States with either parents or grandparents from Mexico, 2) were 18 years of age or older, and 3) spoke English or Spanish. Potential participants who expressed interest in participating completed a brief survey to assess their eligibility and determine their preferred method of contact.

**Recruitment.** Participants were recruited via flyers that were posted in central locations such as *washaterias* [laundromats], community centers, *taquerías* [taco stands], *panaderías* [bakeries], Latine grocery stores, and auto mechanic shops in the Twin Cities metro area and in the Houston metro area. Additionally, Mexican/Mexican American community leaders across the United States (i.e., Texas, North Carolina, and New York) were sent the recruitment flyers to post or email to their respective local communities.

### ***Procedure***

Initially, three focus groups based on language preference (i.e., Spanish-speaking, English-speaking, and bilingual) were planned. However, given external constraints such as scheduling conflicts, inconsistent stream of participants, and the COVID-19 pandemic, remote individual interviews via Zoom were conducted instead of focus groups.

Interested participants completed a pre-screening survey to determine eligibility. Then,

participants were contacted to schedule the interview via Zoom using their preferred method of contact (WhatsApp, phone call, email, or text message).

The semi-structured interviews were conducted via Zoom by the researcher. The study author, who is a bilingual Mexican American, a child from immigrant parents from Mexico, and whose first language was Spanish conducted all interviews. When appropriate, the study author shared information about her background with participants to establish rapport and safety. Participants were asked questions regarding *el ingenio mexicano* including questions about how participants would define *ingenio*, examples of *ingenio* in their life or observations of *ingenio*, context of *ingenio*, the value of *ingenio*, and why the value of *ingenio* is present among Mexicans (see Appendix A). The interviews were recorded, transcribed, and translated, if necessary. Each interview was between 45-60 minutes in duration. Participants were compensated with a \$20 gift card to Target or Walmart. All study procedures were approved by UMN IRB (Protocol: STUDY00010529).

After the interviews were completed, interviews were transcribed in the language they were conducted in (i.e., English or Spanish) by a native speaker of either language. Transcriptions were then reviewed for accuracy by another research assistant. Spanish-language interview transcripts were translated by the study author, who is a native Spanish-speaker and writer, to English. Then, a Spanish-speaking research assistant who identifies as White and learned Spanish as a second language reviewed the translation. Any discrepancies were discussed by the study author and the research assistant. Lastly, the study author reviewed all the transcriptions and translations to ensure accuracy.

### ***Participants***

A total of 12 participants completed the screening process and interviews.

Participant ages ranged from 23 to 57 years old ( $M = 40.25$ ;  $SD = 11.9$ ). Seven participants identified as cisgender women (58.3%), while five participants identified as cisgender men (41.7%). All participants identified their ethnicity as Mexican. Eleven of the twelve participants were born in Mexico, while the remaining participant was born in the United States with Mexican-born parents.

In describing their financial situation growing up, most participants ( $n=5$ ; 41.7%) reported that their family “met needs with a little left over,” while three participants’ families (25%) “just met basic needs,” and four participants’ families (33.3%) “lived comfortably.” Most participants described their current financial situation as “meets needs with a little left over” ( $n=10$ ; 83.3%). One participant described their financial situation as “just meet basic needs and live paycheck to paycheck” while the final participant reported their financial situation as “I live comfortably.”

In terms of education, most of the participants (41.7%) reported obtaining an undergraduate degree ( $n = 5$ ). A quarter of the participants reported some postgraduate education or obtaining a postgraduate degree ( $n = 3$ ). A quarter of the participants reported obtaining an associate degree or currently working towards an undergraduate degree ( $n = 3$ ). One participant reported obtaining a high school diploma.

Participants also reported their current residence. Half of the participants lived in Texas at the time of the interview. Three participants lived in North Carolina (25%), two participants lived in New York (16.7%), and one participant lived in Georgia (8.3%). A majority of participants described their current residence as being in a city ( $n = 9$ ; 75%) while the other participants reported living in a town ( $n = 3$ ; 25%). In terms of their

residence where they were raised, participants reported being raised in a city ( $n = 10$ ; 83.3%) or in a town ( $n = 2$ ; 16.7%).

### ***Language***

All interviews were conducted by the study author. Nine of the twelve interviews were conducted in Spanish based on the preference of the participants, while the remaining three were done mainly in English. All interviews included usage of both languages and participants would switch between languages and used certain phrases in either language. The changes in language were noted in the interview transcription and translation. Additionally, if certain phrases were better captured in Spanish (e.g., *Sí, se puede* [Yes, we can]), these phrases were retained in Spanish in the translated transcripts to capture the nuances and cultural meanings reflected in the phrasing. Additionally, five participants chose to complete the demographic survey in English, and four of those five participants completed their interview in Spanish.

### ***Data Analysis***

**Qualitative Analysis.** The transcripts were analyzed and coded using thematic analysis (Braun & Clarke, 2006) to identify themes capturing the operational definition and manifestation of *ingenio*. A team of three coders were trained in thematic analysis and were provided background information about the project, including literature and media on *el ingenio mexicano* and Mexican culture (see Appendix B for Coding Instructions and Guidelines provided to the coding team). The team of coders was composed of two undergraduate research assistants and the study author, all of whom were familiar with the Mexican/Mexican American community. The study author identified as a second-generation Mexican American woman. The research assistants

identified as a fourth-generation White American woman of Irish, German, and Norwegian descent, and a second-generation Indian and Asian American woman, respectively. Throughout the data analysis, the coding team met to discuss the impact of their own personal and social identities, including any potential biases or misunderstandings in the coding process. Any discrepancies in coding were discussed as a team and resolved via consensus.

**Operational definition and item development.** After the themes and subthemes in the interviews were identified, a comprehensive operational definition of *ingenio* was written and discussed among the coding team. After the operational definition was reviewed, the definition served as the basis for item development and hypothesized scale dimensions. Items were initially developed in English by the coding team and then finalized by the study author after receiving feedback from the study author's advisor. The items and operational definition were then reviewed by three independent expert reviewers (scholars who were of Mexican descent or were otherwise familiar with Mexican communities) for clarity and comprehensibility. Items were also reviewed by three community members who identified as Mexican American and/or of Mexican origin, who provided written feedback and revisions. Two of the community reviewers were born in the United States and had parents who were born in Mexico, while the other individual was born in Mexico, lived in the United States for 14 years, and was living in Mexico at the time of the meeting.

## Results

### *Operational Definition*

To develop an operational definition of *ingenio*, the coding team individually identified codes in the interviews related to defining *ingenio*. The coding team met to discuss similarities and differences across these codes to cover a depth of perspectives and interpretations. The coding team then created concept maps and condensed any overlapping codes. After reviewing the condensed codes, the study author discussed the themes with her advisor. The study author finalized the codes and defined each code to consolidate an operational definition.

Overall, participants shared three main themes related to defining *el ingenio mexicano*. In line with the characteristics of a cultural value (Schwartz, 2006), participants discussed emotions, practices or behaviors, and beliefs associated with *ingenio*. Participants also reported examples of *ingenio* that consisted of creative problem solving, reusing and repurposing materials, and prioritizing home repair within each theme.

After taking into consideration the qualitative themes of *ingenio* and the characteristics of a cultural value, *el ingenio mexicano* was defined as the following:

*El ingenio mexicano* is a cultural value that focuses on the importance of and belief in making difficult situations or environments easier to *salir adelante* [overcome] for oneself, one's family, one's community, or as a culture. The practice of *ingenio* is demonstrated through resourcefulness or engaging in creative problem-solving. *Ingenio* is associated with a range of emotions such as pride, excitement, embarrassment, or frustration. *El ingenio mexicano* is learned



through socialization from family, friends, and other environmental influences such as media and news outlets. Additionally, *ingenio* is present across various life domains (e.g., home, work, school).

**Affect.** The first theme of *el ingenio mexicano* reflected emotional connections with *ingenio*. Participants described negatively and positively valenced emotions that they experienced when they noticed *ingenio* within themselves, as well as their emotions in relation to their family and other Mexican people.

**Negative valence.** Participants shared emotions with a negative valence such as embarrassment, sadness, shame, and frustration. All of the participants who shared these emotions identified as either 1.5-generation (immigrated to the U.S. as children) or second-generation (U.S.-born children of immigrants). None of the participants who were first generation immigrants from Mexico reported these emotions and denied having these emotions when asked.

Participants also described experiencing shifts in their emotions as they developed an understanding of why their family or other Mexican people engaged in *ingenio*. For example, a Mexican American man who arrived in the United States at seven years old said:

You know, when I was a kid that, um, you know—you used to feel a little ashamed of your family doing certain things. I used to maybe not be upset, but, yeah, maybe a little bit upset at my dad and maybe a little ashamed that he would prepare everything himself around the house. And I was like, why didn't you hire someone? But then now I'm the same way, how I fix everything, I try to do

everything myself, and you know that technology today would let me go to YouTube and find out how to do it, and then I just get to it.

A Mexican American woman who was born in Mexico but immigrated to the United States when she was “really young” recalled feeling sad and embarrassed about seeing the measures her parents took in using their *ingenio*. However, she reflected on these moments as “silver linings”:

I guess a little bit, I guess, sadness, a little bit... They did kind of make it, like, you think about that and like as a child, you—you're like, really sad about things like that but, uh— But then, you know, you always find these like silver linings, you know, like all these great memories with your sisters or—or the way things worked out anyway thanks to that *ingenio* that my parents had to kind of get us where we needed to be regardless of what we didn't have.

Later in the interview, she also shared feelings of embarrassment:

I think about how embarrassed I felt at the time. And, that, you know, just like in retrospect, I'm just like how—like, why did I feel that way? When you, like, really think about, um... Especially like for my parents. I could have been, you know, like upset or, you know, embarrassed if they had a solution to something that I didn't particularly like, but it's still worthy. I was embarrassed for really no reason, just because, you know, it wasn't, you know, what everyone was doing or what most people were doing; it was just, you know, what we could do at that time.

A U.S.-born Mexican American woman also shared her feelings of embarrassment when her parents used *ingenio* in reusing and repurposing items:

I think when I was really little, my mom like always loved to reuse like Ziploc bags so like all my Ziploc bags would be like, super like wrinkly and stuff and it'd be a little bit embarrassing like when I take lunches, and like now I could care less.

**Positive valence.** Participants all shared emotions with a positive valence elicited by *ingenio* present in themselves, family, and other Mexicans, such as pride and happiness. For example, a Mexico-born Mexican American man shared:

I think a little bit of happiness or, well, of satisfaction, of being able to have that resource [or skill]. I think most importantly, a feeling of satisfaction that one can have this ability, or have this way of thinking, so to say.

All participants shared a level of pride about seeing other Mexicans using *ingenio*.

And you—you're wowed at how they accomplished something and you're like, "Look how they did that door, oh man, yeah. *Mexicanos* [Mexicans]. *Tuvieron que ser mexicanos* [They had to be Mexican]. *El ingenio mexicano*." So I don't think there was a specific first time; you just see it around.

Another participant described how *ingenio* imparted a cultural pride:

I think it's very important because, even if we don't talk about it, we kind of know what it is. And if it's something that makes us proud. You can thrive to do it as well, so if you know that your culture has this *ingenio—ingenio mexicano*. You want to have that spark too. You want to be part of it, because it's something to be proud of. So it's very important that people kind of know about it and embrace it. Even when sometimes or most of the time we don't know that that's what it is. So

it's very important, it would be cool if everybody knew what it was and embrace it, really.

A Mexican-born Mexican American woman who immigrated to the United States in her thirties shared her experience of seeing other Mexican people using *ingenio* and how it made her feel happy:

I am happy to know that there are *gente ingeniosa* [ingenious people]. When I think of it in Mexican culture, I think of it as it's almost, like, embraced. It's almost celebrated. It's not like it's not necessarily a point of embarrassment or anything like that. It's almost like people make fun of themselves and each other for it. It's not like it's not a shameful thing.

In regard to emotions related to family, participants shared feeling proud of their parents and family in using *ingenio* to fulfill obligations. For example, the same participant that shared feeling embarrassed as a child in seeing her family engage in *ingenio* noted feeling proud of her parents now:

I just kind of remember my mom or dad, and it was just like a little sense of pride. You know, like they were still getting these things done, regardless of, you know, lack of anything.

**Practice of *Ingenio*.** The second theme that emerged included the practice of *ingenio* through the behaviors that participants, their family, or other Mexican people exhibited. Participants shared three main ways in which they noticed *ingenio*: reusing or repurposing items, engaging in creative problem solving, and prioritizing home repair.

***Reusing and repurposing items.*** Participants shared examples and experiences where they themselves, their family, or other Mexican people reused single-use items or

used items in a manner other than its intended purpose. For example, a 33-year-old man who immigrated to the United States in his twenties shared his view on *el ingenio mexicano* as he recalled seeing other Mexican people create other objects out of unconventional materials:

You know how with *el ingenio, mexicanos* [Mexican people] make like sandals out of a tire, like that. It's like a shoe just like that.

He later shared an example where he was leaving a work site and noticed a flat tire on his trailer of landscaping equipment. He described stopping in a parking lot to change it using items available in his environment in an unconventional way:

I used it like—like I always bring my trailer and one time I didn't bring the jack that you use to change a tire, then you see that in the *parqueadero* [slang for “parking lot”] they put like some kind of cement, like a curb. So what I did was I loosened it and then I went in reverse, and then I raised the back tire and the other one in front of me is like raised up. So I don't need a jack anymore. Then my wife said, “And how are you going to change it?” I said, “*O estes* (incorrect word for “*este*”) I'm going to do a *ingenio mexicano*.” And I loosened it and got in and the tire was already up and I quickly changed it. She said, “*No'mbre* (slang exclamation for “no man”)! I would never have thought of this!” *Aja* [chuckles].

Additionally, participants shared noticing their family engaging in both reusing and repurposing of items. For example, a U.S.-born Mexican American woman with Mexico-born parents shared a memory of her dad using *el ingenio mexicano*:

The number one thing I think about when I think of it, like, *el ingenio mexicano*, I know is my dad. So my dad loves to fish, but he hates fishing poles. And so he—

he fishes by taking literally, like—like soda cans, wrapping the fishing line around them and then attaching the—the fishing hooks to the end of the line, and then he'll—when he's ready to throw that into the water, he'll literally take some of the line through it, like a lasso, into the water, and then when he gets a fish, he like wraps it around the can. It's almost like a reel but with a Pepsi can and that's the way he fishes. And like today, you know, he's able to afford fishing poles, but he's still used to fishing with his Pepsi bottles.

Lastly, a participant shared that when she thinks about *el ingenio mexicano*, reusing items is one of the first things that comes to mind:

Well *el ingenio mexicano* as it has been known as a thousand uses, in which a person is not limited to what he has or for what objects are at [their] disposal or the purpose or use of the objects, but instead is creative.

***Prioritizing home repair.*** Participants shared examples of engaging in fixing problems by themselves instead of hiring someone else to complete the work (e.g., a repair person or contractor). As in the other themes, participants shared examples of themselves, their family, and other Mexicans engaging in their own home repair. Often, participants described repairing things themselves as necessary due to limited resources, but participants also shared wanting to repair things themselves to see if they could do it themselves first. Multiple participants shared their experiences with even fixing cars themselves in Mexico despite not having formal training in mechanics:

If, um... your transmission breaks, here [in the United States], basically [a mechanic] has to replace your transmission. Mexico, no, they're going to repair—they're gonna crack open that transmission and they're going to fix the

transmission, so you can have your transmission. Here you barely rarely see that—they are always just going to tell you, “No, you just need the new transmission” and, you know, little things like that, with everything—with a fridge, with, you know, basically replace things... Not in—not in Mexico; you have to try to repair with what you have.

Another participant shared their family doing similar things with their car, holding out on going to a mechanic until the car could no longer run:

So then, the gears are held with a wire—so where the gear shift[s] in the engine—and it came loose in the cable that makes the gears move in my car and then my dad—I remember very well—my dad grabbed a clip, a clip of, like, from the papers and with that, he fixed it.

Participants also shared their personal experiences with prioritizing fixing things on their own despite others asking them to call someone else or asking them to buy a new item.

For example, a Mexican man who was born in Mexico and immigrated to the United States as an adult shared a recent issue with his microwave:

Our microwave just broke down. And then it wasn't spinning the plate, and then my wife said, “We're going to get—we need to buy a new one.” And I said, “*Pérate, pérate* [slang for “wait, wait”]. I'm going to check it for you.” And I started to take it apart and then I saw that it was a part and we checked it, and—and the original part was more expensive. It cost like \$60. We found another one, another piece more like it. We said, “Well let's just try it *nomás* [slang for “*nada más*”/“that's it”]. It costs like \$10.” We said “Well, yes.” We ordered it and everything, it came to us, but it turned out, it was a little bit thicker. So I was

sanding it, I was sanding it until I made it the size I wanted it to be. And there's the microwave working.

Participants shared experiences where they had to find a solution to a non-material problem despite difficulty or a lack of resources. Participants shared that these solutions were often creative, unconventional, or even “thinking without a box.” This theme has overlap with previous themes (“Reusing and repurposing items” and “Prioritizing home repair”); however, this theme uniquely captures examples of *ingenio* outside of the manual or material problems reflected in the previous themes. For example, a Mexico-born man discussed finding ways to make the task at hand easier or more efficient. He noted:

*Ingenio mexicano* is like fitting as many objects as possible in a small thing, is it? It is just these kinds of examples [that] come to mind a lot. I think other people might just say, “No, you can only carry three-gallon jugs of water.” And for the Mexican, if you tell him to do seven trips [for the water] and he says “No, two trips is better.” And they'll see how to make 14-gallon jugs fit into [the dolley] or something like that.

Later, the participant shared that this expanded to other problems in the cognitive domain:

I would chalk a little bit of this up to *ingenio mexicano* in terms of the ability to be flexible, in all sorts of circumstances, right? People that adapt to the needs of others. If you don't become stuck in a material task like that, then well in other mental things too, they look to find other ways around, you know?



Another participant discussed the importance of creative problem solving among undocumented individuals for their day-to-day tasks. She noted:

I've noticed a lot of undocumented people are just self-employed; they find ways to create their own businesses to avoid needing the required documentation to work legally. And I've also seen, I mentioned, like the extensive carpooling, and then also I know that they'll use the same community type of setups to get car insurance because some of them may not have, you know, the proper documentation to legally drive.

Participants also shared how this creative problem solving skill was present at their job. For example, a participant who was a teacher reported finding ways to teach difficult concepts in creative ways so that her students could understand the material better:

It makes me proud. It makes me proud that suddenly in school we are planning a way to explain something, and I come up with a much simpler way, that I didn't even learn it myself, but with [*ingenio*] it has given me—well it can be explained in a way that the teachers say, “Oh, that's true.”

Other participants shared creative problem solving in the use of the Spanish language to find humor in difficult situations:

I also think when it comes to *el ingenio mexicano*, I also think of the language as we play with the language so much. And I kind of pride myself to know other cultures and know them well enough to see the differences in their, you know, the way they speak Spanish, and and I feel like [in] Mexico, we really play with the language, and you know the words, and, you know, there was the *dobles sentido* [double meaning] to all that stuff. And that's—that's pretty funny, and you think

about it, it's very creative—very creative. So when I think of *ingenio mexicano* I also think of that, you know, the language.

Overall, this theme reflected the creative solutions that individuals would use to solve a problem in their day-to-day life, difficult environments, or to be more efficient.

Participants discussed examples of *ingenio* that extended unconventional solutions for material problems to “thinking without a box” solutions to intangible problems, such as finding ways to survive under restrictive immigration law and finding humor in linguistic creativity.

**Belief.** The last theme includes the belief that the practice of *ingenio* (i.e., solving problems creatively, engaging in home repair, reusing/upcycling items) is something of value which makes difficult situations or environments easier to manage, and which is important to their identity as Mexican/Mexican American. Participants often shared that they see *ingenio* as a way to *salir adelante* [move forward or overcome]. They described how *ingenio* helped them or their family cope with financial strain and other difficult life events and circumstances. Lastly, participants shared the belief that *ingenio* helped them navigate their day-to-day problems in an easier way.

One participant shared the differences between living in the United States and Mexico, highlighting how she and other Mexican people use *ingenio* to find ways to cope with difficulties:

In Mexico that adversity, we have to face it on our own, right? So as a family we have to *ingeniárnosla* [use ingenio] and see the solution and see what we can do and *listo* [ready]! Right? How to optimize these resources.

Participants also shared this belief that *el ingenio mexicano* helps individuals, their family members, and the Mexican community *salir adelante* [overcome] when experiencing need:

The need makes you think about having to *salir adelante* [overcome]. Yes, because you know that in Mexico there are no resources like here [in the U.S.]. So you have to pull things together, think, and yes, with everything we have around us. We have to *salir adelante* [overcome].

Regarding the use of *ingenio* to cope with difficult financial circumstances, participants discussed the social and economic conditions in Mexico and how they impacted their approach to their own financial circumstances:

I think the middle class is about to disappear in Mexico. And that has made us very *ingeniosos* [ingenious] in the—in the fact of how to reuse. It was about how to give it a life—prolong the life of some of our objects so that they can serve as something else, right? So, uh, for example, we know how to save. We try to spend what is necessary. And that too, in the *ingenio* part, right? Suddenly, ehh, we try to use an object in another way to prolong its lifetime and to prolong the usefulness it will give us.

Another participant described the benefits of using *ingenio*:

I think that the fact of being so *ingeniosos* [ingenious] makes us save a little bit more, whether it's resources, energy, that we give more life to our belongings. So something that we do a lot is to reuse or recycle. That is something, for example, that I like very much; it is something that I am very proud of and it is something that I like to teach others.

Lastly, participants also noted that *ingenio* helped them, their families, and the Mexican community cope through difficult circumstances such as the COVID-19 pandemic, their shared history of oppression, and difficult life experiences. A participant shared an experience where a teacher had to learn how to share her screen after moving to a virtual classroom due to COVID-19 restrictions and precautions:

One of them shared a link, but she didn't know how to share the screen, so they pass the picture of how on her laptop she took a CD, of the normal CDs that we had before, and she stuck it against the camera and that so the mirror effect so she could write and on the camera, she showed absolutely everything. And because of the mirror effect, the students could see it well. Because if you hold here, put something here, you see it upside down. So, that was very *ingeniosos* [ingenious] for me, for example, because I wouldn't have thought of doing it, right? And I said, "It was just a matter of thinking of what's at hand? What could be useful for me and [my students]?" And she just implemented it because [she needed to].

She later shared her own belief in *ingenio* and making a situation easier to manage:

Even in a personal way, the *ingenio* has also given me that resilience. That sense that I can make an adverse situation into something less complex. Or I can get out of it, I can *ingeníarmelas* [use *ingenio*]. *Ingenio* is going to be this way of thinking that goes beyond that obstacle. And then I'm able to not just see black and white, but to be able to distinguish a range of opportunities between one decision or another.

Another participant described how *ingenio* helps Mexican and Mexican American individuals cope with external circumstances such as poverty and systemic oppression as well as difficult life experiences, including death:

I guess it's the result of years of poverty and oppression. And you know you just have to make ends meet, and you have to find a way to have fun in life in this, and the reason I'm saying this is, you know the language and I just we're known to take a look at things in a funny way, you know how they you know how we see death. You know, we kind of make fun of it. It's one of the few cultures that we kind of make fun of death. So I think it's used in the history of us trying to be a little happier, make ends meet with what we have.

One participant described how *ingenio*'s importance to Mexicans and Mexican Americans makes it a uniquely Mexican cultural value:

I don't think it's a pillar as such [in other cultures]. It's something they are very proud of, like their gastronomy or their music... but they haven't perhaps reached the point of conceiving it as something very, very important, no? So I think that's the same attitude that makes [people from other cultures] not to talk [about *ingenio*] for five hours. . . They just talk for a little while, say an opinion, and that's it. So I don't think it's the pillar. Or at least I don't think they see or consider *ingenio* as a pillar. They consider it perhaps as a side effect. But yes, not to the extent that Mexicans talk about *ingenio*.

The theme of belief highlights how participants view *ingenio* as a value that is important to helping them overcome the many difficult circumstances and situations they face as marginalized people, and that is important to their identity as Mexican.

### ***Item Development***

Items were developed by the coding team to reflect the three themes discussed above: affect, belief, and practice. For each domain, items were created to reflect feelings about and belief in *ingenio* as it relates to the individual, their family, and the Mexican community. Development of items at these three levels was reflected in how participants discussed *ingenio* in the interviews. For the practice domain, items were created to reflect the behaviors individuals described as demonstrating *ingenio*. Additionally, each domain reflected three areas of *ingenio*: creative problem solving, reusing/repurposing, and home repair.

After an initial item pool was generated by the coding team, the study author refined items and created more items that reflected content from the participant interviews as well as social media posts, news articles, and popular media about *ingenio*. The item pool consisted of about 85 items. The study author then reviewed items and reduced the pool to 55 items. The study author's advisor also provided feedback on the final list of items before they were sent to the expert panel.

### ***Expert Panel Feedback***

The 55 items were reviewed by an expert panel which consisted of three Mexican American psychologists. The panel was provided with background information about *el ingenio mexicano* including a short description and the operational definition developed for *ingenio* as a cultural value.

**Affect.** The experts provided differing perspectives on items capturing the negative valence such as embarrassment, shame, and frustration towards *ingenio*. Some experts noted that they would find value in adding an example of *ingenio* such as "I feel

frustrated when my family uses creative solutions to solve problems instead of seeking professional help (e.g., repairing a car door utilizing a hanger).” Items created by the study author did not include specific examples of *ingenio* to limit the possibility of restricting participants’ understanding of *ingenio* given the broad range of behaviors that could demonstrate *ingenio*. Other experts concurred that it was helpful to omit specific examples of *ingenio* as they were able to come up with their own examples.

One of the experts expressed some concern about the items that reflected negative emotions about *ingenio* as they were unsure of how people may feel annoyed when they see their family use *ingenio*. However, the expert later shared that their own high levels of *ingenio* may have shaped their perception of the negative valence items.

**Belief.** Experts noted that it was important to ensure that each subdomain (i.e., creative problem solving, reusing/repurposing, and prioritizing home repair) included items reflecting each level of Mexican community, family, and self. Changes were made to reflect this feedback.

After the study author compiled the feedback from the expert panel, she reviewed the items and made the necessary revisions to address the feedback. The scale was then reduced to 30 items. Given the mixed feedback on the use of specific examples of *ingenio* in the items, the study author met with community members to gather additional feedback.

### ***Community Member Feedback***

Three community members that identified as Mexican and/or Mexican American met with the study author via Zoom to review the items. The goal of these meetings was to gain a better understanding of whether participants may benefit from including

specific, illustrative examples of *ingenio* in the items, or whether participants would be able to understand the items without such examples. Additionally, these meetings served to ensure that all aspects of *ingenio* were being captured by the items.

The community members consulted indicated that they found it more useful to omit specific examples of *ingenio* in the items, noting that they were able to come up with examples of *ingenio* on their own. The community members were given previous iterations of items that included examples and they expressed concern whether participants would feel that their experiences with *ingenio* matched the example. As such, the items were refined to be broad enough to capture a wide range of experiences with *ingenio* and did not prompt participants with an example (See Appendix C for full scale).

## **Discussion**

This study explored *el ingenio mexicano* as a new cultural value among Mexican/Mexican Americans and sought to create an operational definition and items that captured this salient cultural value among the Mexican/Mexican community. Overall, *ingenio* was described as an important cultural value in the lives of Mexican/Mexican Americans. In accordance with previous research on cultural values (Schwartz, 2006; Peterson & Seligman, 2004), *ingenio* was discussed in terms of its historical underpinnings, affective valence, salience, influence on behavior, and presence across various domains such as work tasks and home repair. The findings of this study also highlighted an additional dimension to cultural values not captured in previous models and measures: participants discussed familial and community aspects of *ingenio* as a cultural value in addition to personal aspects. As such, items generated from the



interview data reflected experiences of *ingenio* related to the individual, the family, and other Mexican people.

Three main themes and subthemes describing *ingenio* were found. The themes consisted of affect, practices, and beliefs of *ingenio*, and subthemes of practice included creative problem solving, reusing/repurposing materials, and prioritizing home repair. The first theme consisted of the participants' affect in relation to *ingenio* in both negative and positive valences. Participants shared their emotional connections with *ingenio* as they discussed *ingenio* within themselves, their families, and other Mexican people. Emotions ranged from shame, frustration, embarrassment to pride, satisfaction, and happiness. All the participants who shared negative valence emotions identified as 1.5- or second-generation immigrants which may suggest that these emotions could stem from acculturative stress, as these participants must balance the mainstream cultural values with that of their heritage culture (Rodriguez et al. 2002). Participants may have viewed the practice of *ingenio* as outside of the mainstream culture and therefore embarrassing. Additionally, participants' negative emotions may result from the practice of *ingenio* being necessitated by low socioeconomic status and lacking the resources to pursue conventional solutions (e.g., paying for repairs, purchasing replacement items).

The second theme reflected the practice of *ingenio*. Participants described ways that they have engaged in *ingenio* across subthemes of reusing and repurposing materials, prioritizing home repair, and creative problem solving. For the subtheme of reusing and repurposing items, participants discussed reusing single-use items or using items in unconventional ways or outside of their intended purpose. Many participants shared that while this strategy may have stemmed from limited resources, they continue to practice

reusing and repurposing materials as they find it to be important, which demonstrates the salience of this cultural value. The next subtheme that emerged included the prioritization of home repair instead of seeking professional help. Similar to the reusing and repurposing subtheme, participants noted that they engaged in home repair out of a need but also opted for this strategy as they wanted to first try to fix things themselves. The last subtheme included practicing finding creative solutions or engaging in creative problem solving. Participants shared finding creative and unconventional solutions to a non-material problem. While the other subthemes also consisted of creative solutions, this subtheme was created to capture solutions to other types of problems such as ways to make tasks more efficient and to cope with difficult situations.

The third theme is the belief that practicing *ingenio* is critical to the survival and success of individuals, their families, and other Mexican people, as well as to Mexican identity. Participants shared that they believed *ingenio*, demonstrated through reusing and repurposing, creative problem solving, and prioritizing home repair, helped them cope in the face of systemic oppression and difficult life experiences, particularly financial stress. Participants' descriptions of how important *ingenio* was to their day-to-day activities and to their Mexican cultural identity demonstrated the salience of *ingenio* in their lives.

This study demonstrated the importance of *el ingenio mexicano* as a cultural value in the Mexican/Mexican American community. Participants described *ingenio* as a cultural value emphasizing the use of creativity and whatever resources are available to *salir adelante* [overcome] difficult circumstances. As with other Mexican cultural values, such as familism, *ingenio* may be viewed as a protective factor in Mexican/Mexican American families that allows them to survive hardship (Calzada et al., 2012).

Participants reported observing *ingenio* across a variety of domains including home, work, and school. The interviews captured a range of emotions associated with *ingenio*, including pride (on individual and cultural levels), happiness, embarrassment, and frustration.

This study also sought to develop items for the *Ingenio* Scale based on the three themes discussed above (i.e., belief, practice, and affect). Items were created to reflect the experiences of oneself, one's family, and other Mexican people as described in the interviews. Each subscale also included each of the subthemes of *ingenio* including creative problem solving, reusing/repurposing, and prioritizing home repair. This study followed a community-centered process for defining *ingenio* as a Mexican cultural value and for the construction of an *Ingenio* Scale. The inductive approach to item development made participants' understanding of *ingenio* the basis for the *Ingenio* Scale. Additional feedback provided from the expert panel and community member reviewers allowed for an item development process involving iterative community feedback and revision. Based on this feedback, the final item pool included 30 items.

### **Limitations**

While this study provided an understanding of the importance of *ingenio* among Mexican/Mexican Americans, this study includes several limitations that may impact the interpretations and conclusions of this study. First, most participants identified as first-generation immigrants, which may limit the range of experiences captured in the *Ingenio* Scale. It is important to also understand and capture the perspectives of second- and third-generation Mexican Americans given their differing exposure to mainstream culture and varying levels of cultural socialization by peers, family, and media. Previous research

has suggested that individuals who are second- and third-generation immigrants may be more acculturated to the mainstream culture and be less likely to adopt the values of their heritage culture (Marsiglia et al., 2018; Vega & Gil, 1999). For example, these acculturative differences may explain why, in this study, only 1.5- and second-generation immigrants shared negative emotions such as embarrassment and shame related to *ingenio*. Including more participants who are 1.5- or second-generation immigrants may have provided more clarity on the reason for negative emotions about *ingenio*, such as shame about having limited financial resources or acculturative stress.

Second, given that participants were recruited to participate in a study on “*el ingenio mexicano*,” participants who already considered *ingenio* to be an important part of their life may have self-selected to be in this study. These participants may have been more likely to have high levels of *ingenio* and/or were socialized to believe that *ingenio* is a more important cultural value among Mexican/Mexican Americans than other members of the community. The scale items developed may therefore mainly reflect the experiences of those who hold a high regard for *ingenio* or are high in *ingenio* rather than capturing the full range of value placed on *ingenio* among the general Mexican/Mexican American population.

Lastly, this study was the first empirical study of *ingenio* among Mexicans/Mexican Americans to the authors’ knowledge. The exploratory nature of this study was intended only to provide an initial definition of the construct of *ingenio* and develop a scale measuring the construct. The scope of this project did not include distinguishing *ingenio* conceptually from more general resourcefulness necessitated by lack of material and financial resources, which is seen across cultural groups. It may be

that other cultural, environmental, or individual factors play a role in the unique presentation of *ingenio* in Mexican/Mexican American culture. Future research should further contextualize *ingenio* in Mexican/Mexican American culture and history and further delineate its unique cultural meaning among Mexican/Mexican Americans.

### **Study Two**

The purpose of Study Two was to test the *ingenio* scale items that were developed in Study One. The initial psychometric properties of the scale were tested, including exploratory factor analyses, confirmatory factor analyses, and reliability of scale scores. Additionally, the construct validity of the scale was tested by examining concurrent, incremental, and divergent validity. This study was pre-registered with the Center for Open Science and is available at: <https://osf.io/sp3h6>. Any changes or deviations from the pre-registration are reported.

It is important to note that the following hypotheses were created before the final factor structure and components were established by the exploratory factor analysis. Given the lack of research on *ingenio*, this study was exploratory in nature. As such, hypotheses were based on the overall *Ingenio* Scale instead of any subsequent dimensions.

**Hypothesis One:** A three-factor structure will emerge according to the three hypothesized subscales (i.e., belief, practice, and affect).

**Hypothesis Two:** A three-factor structure will be confirmed and have good model fit based on Hu and Bentler (1999)'s guidelines.

**Hypothesis Three:** The scale will demonstrate concurrent validity as it will be positively related to ethnic identity, pressure to acculturate, familism, and economic hardship.

**Hypothesis Four:** The scale will demonstrate discriminant validity as it will be unrelated to traditional gender roles, discrimination, pressure against acculturation, and depressive symptoms.

**Hypothesis Five:** The scale will demonstrate incremental validity by predicting resilience above and beyond familism, values in action scales, and personality traits such as creativity.

## **Methods**

### ***Recruitment and Compensation***

Participants were recruited from Prolific. Interested Latine participants completed a pre-screening survey to ensure that they met eligibility criteria (at least 18 years old, of Mexican descent and/or origin, and speak English). After reviewing the consent form and study procedures, participants were asked to provide consent or decline. If participants declined, they were removed from the study and were not asked further questions. If participants consented, participants continued to the survey. The survey included demographic questions followed by questions about their experiences as a self-identified Mexican and their cultural values. Participants also responded to questions regarding *el ingenio mexicano* including the scale items developed and other measures of mental health, cultural identity, and personality. After completing the survey, participants were compensated \$12 per hour based on the time they took to complete the survey.

Participants took about an average of 18.5 minutes to complete the survey. All study procedures were approved by UMN IRB (Protocol: STUDY00014302).

### ***Participants***

Latine participants living in the United States were screened to determine their eligibility (i.e., of Mexican descent and/or origin). Out of a screening of 560 Latine participants, 326 participants were found to be eligible. Of these 326 eligible participants, 266 consented to participate and completed the survey. Participant ages ranged from 18 to 66 years old ( $M = 29.05$ ;  $SD = 8.48$ ). Most participants identified as men (48.9%) while 47.4% of the sample identified as women and 3.4% identified as gender non-conforming, nonbinary, agender, or genderqueer. One participant did not disclose their gender. All participants identified their ethnicity as Mexican.

In describing their financial situation growing up, most participants ( $n = 111$ ; 41.7%) reported that their family “just met their basic needs and lived paycheck to paycheck” and 39.5% of participants ( $n = 105$ ) noted that their family “met their basic needs and had a little left over.” An equal number of participants shared that their family either “struggled financially and had unmet basic needs” ( $n = 25$ ; 9.4%) or “lived comfortably and did not worry about money” ( $n = 25$ ; 9.4%). In regard to their current financial situation, most participants described their financial situation as “meeting needs with a little left over” ( $n = 104$ ; 39.1%). Other participants described their financial situation as “struggling financially and have unmet basic needs” ( $n = 17$ ; 6.4%), “just meeting basic needs and living paycheck to paycheck” ( $n = 99$ ; 37.2%), and “living comfortably and do not worry about money” ( $n = 46$ ; 17.3%).

In terms of education, 35.3% of participants reported obtaining an undergraduate degree ( $n = 94$ ). Twenty-two participants (8.3%) reported some postgraduate education or obtaining a postgraduate degree, while 37.2% of participants reported obtaining an associate's degree or currently working towards an undergraduate degree ( $n = 99$ ). Six participants (2.3%) reported completing vocational or technical training, while 1.5% of participants reported completing some high school ( $n = 4$ ) and 15.4% of participants reported completing high school ( $n = 41$ ).

Participants also rated their English and Spanish language skills. All participants described their English language skills as “good” or “excellent.” In terms of Spanish language skills, 63 participants (23.7%) each rated themselves as “poor” or “adequate.” Sixty-two participants (23.3%) rated their Spanish as “excellent” and 78 participants (29.3%) rated their Spanish language skills as “good.”

Regarding their nativity, a large majority of participants were born in the United States ( $n = 241$ ; 93.3%). Of the 93.3% of U.S.-born participants, 167 participants had parents who were born in Mexico while 81 participants had grandparents who were born in Mexico. About 6.8% of the sample was born in Mexico ( $n = 18$ ).

### ***Measures***

**Demographics.** Participants provided information regarding their gender, age, nativity, current living situation, socioeconomic status (present and growing up), economic hardships experienced, education, and language preferences and fluency.

**Ethnic Identity.** The Ethnic Identity Scale–Brief Form (EIS-BF) was used to measure participants' ethnic identity (Douglass & Umaña-Taylor, 2015; Umaña-Taylor et al., 2004). The exploration subscale (3 items;  $\alpha = 0.835$ ) captures the participant's sense



of exploring their ethnic identity through their participation in activities that teach them about their ethnic background. The resolution subscale (3 items;  $\alpha = 0.918$ ) captures the participant's clarity on what their ethnic identity means to them. Lastly, the affirmation subscale (3 items;  $\alpha = 0.759$ ) captures the participant's positive feelings towards their ethnic background. Items for the affirmation subscale are reverse-coded due to the negatively worded items. Additionally, one positively worded affirmation item, "I feel positively about my ethnicity," was written by the study author and added to the survey. This item was included in the analyses as a single indicator of affirmation to explore whether there would be different results than with the negatively worded affirmation subscale. These analyses were exploratory and were not listed in the preregistration. Item ratings ranged from 1 (*Does not describe me well*) to 5 (*Describes me very well*). Each subscale was scored as an average of all the items. Additionally, a separate variable was created to reflect a total score of ethnic identity.

**Familism.** An individual's adherence to the cultural value of *familismo* was assessed using the familism obligation subscale of the Mexican American Cultural Values Scale (MACVS), which was developed in a sample of Mexico-origin families (Knight et al., 2010). The familism obligation subscale (5 items;  $\alpha = 0.801$ ) assesses how strongly an individual believes that they should be fulfilling family obligations to be able to take care of the family. Item ratings ranged from 1 (*Not at all*) to 5 (*Completely*). The scale was scored as an average of all the items.

**Mexican Gender Roles.** Participants' valuing of traditional gender roles in Mexican culture (i.e., *machismo* and *marianismo*) was measured using the gender roles subscale of the Mexican American Cultural Values Scale (MACVS; Knight et al., 2010).

Item ratings ranged from 1 (*Not at all*) to 5 (*Completely*). The scale was scored as an average of all the items. Reliability of the scale was assessed by using Cronbach's alpha ( $\alpha = 0.628$ ).

**Discrimination.** Experiences of discrimination were measured utilizing a modified discrimination scale by Umaña-Taylor and Updegraff (2007) from the Perceived Discrimination Scale (Whitbeck et al., 2001). The scale (5 items;  $\alpha = 0.875$ ) includes items reflecting experiences of discrimination related to one's Mexican identity such as "Have other people treated you unfairly because you are Mexican or Mexican American?" Item ratings ranged from 1 (*Almost never*) to 4 (*Very often*). This scale was scored as a total score of all the items.

**Depressive Symptoms.** Depressive symptoms were assessed using the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has been used and measured in samples of diverse Mexican participants (Donlan & Lee, 2010; Lara et al., 2015). The PHQ-9 has a total of 9 items ( $\alpha = 0.897$ ). Item ratings ranged from 0 (*Not at all*) to 3 (*Nearly every day*). A total score was calculated for each participant by summing all item ratings.

**Brief Resilience Scale.** Resilience was measured using the Brief Resilience Scale (Smith et al., 2008). The Brief Resilience Scale includes six items rated on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*) measuring how individuals cope with difficult times ( $\alpha = 0.885$ ). Items include "I tend to bounce back quickly after hard times" and "I usually come through difficult times with little trouble." The scale was scored as an average of all the items.

**Resilient Coping.** Resilient coping was measured using the Brief Resilient Coping Scale (BRCS; Kocalevent et al., 2017). This measure of resilience includes four questions examining behaviors related to coping to problems ( $\alpha = 0.744$ ). A mean score was calculated for this scale. Items include “I look for creative ways to alter difficult situations” and “I actively look for ways to replace the losses I encounter in life.” Participants rated the items using a scale ranging from 1 (*Does not describe me at all*) to 5 (*Describes me very well*).

**Conscientiousness and Openness.** Conscientiousness and Openness were measured using the respective HEXACO subscales (Ashton & Lee, 2009). Items were rated from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The conscientiousness subscale ( $\alpha = 0.739$ ) included 10 items such as “I often push myself very hard when trying to achieve a goal” and “I plan ahead and organize things, to avoid scrambling at the last minute.” Meanwhile, the openness subscale ( $\alpha = 0.769$ ) included 10 items such as “People have often told me that I have a good imagination” and “I like people who have unconventional views.” Each subscale was scored as an average of all the respective items.

**Values in Action.** Other broad cultural values were examined based on the Values in Action scale by Peterson and Seligman (2004). Specifically, four subscales were used: bravery (3 items;  $\alpha = 0.820$ ), perseverance (3 items;  $\alpha = 0.870$ ), self-regulation (3 items;  $\alpha = 0.634$ ), and creativity (3 items;  $\alpha = 0.706$ ). Items were rated from 1 (*Very much unlike me*) to 5 (*Very much like me*). Mean scores were taken from each subscale and examined separately.

**Acculturative Stress.** Acculturative stress was measured by the Multidimensional Acculturative Stress Inventory Scale (Rodriguez et al., 2002). Two dimensions from the scale were examined including the pressure to acculturate and the pressure against acculturation. The pressure to acculturate includes seven items ( $\alpha = 0.837$ ) that reflect an individual finding it difficult to adjust to American culture as they may tend to follow Mexican customs. The pressure against acculturation subscale ( $\alpha = 0.727$ ) captures the pressure that someone may experience if they prefer American culture over Mexican culture. It is important to note that the pressure against acculturation was developed to include four items; however, the study author missed a question on the survey and only included three items. Any interpretations of this scale are to be taken with caution. Each subscale was used separately by taking a mean score. Items were rated from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

## **Results**

### ***Exploratory Factor Analysis***

Exploratory factors analysis (EFA) was conducted in SPSS Version 25 using principal axis factoring with an oblimin rotation. The data was deemed suitable for EFA after reviewing the Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO) and Bartlett's test of Sphericity results (KMO = .904; Bartlett's Test:  $p < 0.001$ ). The communalities for three and four factors are shown in Table 1. Additionally, Table 2 includes the factor loadings for a three-factor solution and Table 3 includes the factor loadings for a four-factor solution. Parallel analysis and Velicer's MAP test were conducted based on O'Connor's guidelines and syntax (2000) to supplement the EFA. The parallel analysis supported up to a three-factor solution, as seen in Table 4. Velicer's

MAP test supported up to a four-factor solution, as seen in Table 5. After examining both the three-factor solution and four-factor solution, a three-factor solution was retained as it was a more parsimonious model and better reflected the interviews from Study One. Although in the study preregistration it was planned to remove items with a factor loading below 0.30, a threshold of 0.40 was used instead in accordance with more appropriate guidelines (Furr, 2011). Four items were deleted due to low factor loadings (See Appendix D for more details on items deleted and Appendix E for the final scale and factors).

Factor 1 was labeled *Negative Affect*. It captured the negative affect one may experience when observing *ingenio* within oneself, their family, and other Mexican people. Factor 2 was labeled *Personal Ingenio* and captured the positive affect, practice of *ingenio*, and belief in *ingenio* that an individual may associate with their own use of *ingenio*. Lastly, Factor 3 was labeled *Group Ingenio*. Factor 3 reflected the positive affect and belief in *ingenio* individuals may associate with *ingenio* demonstrated by family and other Mexican people. Factor 2 and Factor 3 both consisted of items related to the importance of reusing/repurposing materials, prioritizing home repair, and engaging in creative problem solving. However, Factor 3 solely focused on the belief and positive affect as it related to family and other Mexican people, rather than the individual.

### ***Reliability of the Ingenio Scale***

The reliability of the subscale scores of the *Ingenio* Scale were examined by calculating the internal consistencies of the subscales (i.e., Cronbach's alpha). Each subscale reflected the three-factor solution from the EFA. Items were rated on a 5-point scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The negative affect

subscale had seven items ( $M = 2.2$ ;  $SD = 0.7$ ) and the scale score had a reliability of  $\alpha = 0.803$ . The personal *ingenio* subscale had 12 items ( $M = 4.2$ ;  $SD = 0.7$ ) and the scale score had a reliability of  $\alpha = 0.862$ . Lastly, the group *ingenio* subscale had seven items ( $M = 4.9$ ;  $SD = 0.6$ ) and the scale score had a reliability of  $\alpha = 0.840$ . Overall, these subscales demonstrated good reliability. Meanwhile, the full *Ingenio* Scale was comprised of 26 items ( $M = 4.5$ ;  $SD = 0.6$ ) and had a reliability of  $\alpha = 0.901$ .

### ***Scale Intercorrelations***

The correlations between the subscales and total *Ingenio* Scale were conducted for the total sample and by gender and nativity. Table 6 shows the correlations between the *Ingenio* subscales (i.e., negative affect, personal ingenio, and group ingenio) and the *Ingenio* Scale among women and men while Table 7 shows the correlations among agender/genderqueer/nonbinary participants and total participants. Additionally, Table 8 shows the correlations between the subscales and the *Ingenio* Scale among U.S.-born and Mexico-born participants. All the correlations were in the expected direction and there were no differences in direction of the correlations among each group.

### ***Confirmatory Factor Analysis***

The confirmatory factor analysis (CFA) was conducted to determine whether the three-factor model had adequate fit based on Hu and Bentler's (1999) guidelines. These analyses were based on the factor structure derived from the exploratory factor analysis. Modifications made to the model were based on theoretical and conceptual rationale. All modifications were based on the intended correlation within the negative affect items and the items that were intended to measure the practice of *ingenio* through prioritizing home repair and reusing/repurposing. The model fit before modifications was acceptable based

on the standardized root mean square residual (SRMR = 0.073) and root mean square error of approximation (RMSEA = 0.075), but the comparative fit index (CFI = 0.822) demonstrated an unacceptable fit. After covarying the error terms for the negative affect items, practice–home repair items, and practice– reusing/repurposing items, the model fit was acceptable (CFI = 0.901, SRMR = 0.065, and RMSEA = 0.057). This modified model of the three-factor structure of the *Ingenio* Scale was retained to produce the following results.

### ***Validity***

Means, standard deviations, and correlation coefficients among the validity measures are presented in Table 9. It was hypothesized that the *Ingenio* Scale would demonstrate concurrent validity with ethnic identity, pressure to acculturate, familism, and economic hardship growing up. The hypothesis regarding ethnic identity was supported: all three subscales of the *Ingenio* Scale were related to Ethnic Identity Scale-Brief total scores. As expected, the negative affect subscale was negatively related to ethnic identity while personal *ingenio* and group *ingenio* were positively related to ethnic identity. However, after examining the relationship between each dimension of ethnic identity (i.e., exploration, resolution, and affirmation), only exploration and resolution were significantly related to *ingenio* negative affect, personal *ingenio*, and group *ingenio*. Affirmation was only related to the negative affect subscale ( $r = -0.204, p < 0.001$ ). One positively worded affirmation item, “I feel positively about my ethnicity,” written by the study author was also included in the analyses to explore whether there would be different results than with the negatively worded affirmation subscale. These analyses were exploratory and were not listed in the preregistration. The one-item was

significantly related to negative affect ( $r = -0.261, p < 0.001$ ) and group *ingenio* ( $r = 0.299, p < 0.001$ ), but was not significantly related to personal *ingenio* ( $r = 0.088, p = 0.076$ ).

The *Ingenio* Scale was also related to familism, as hypothesized. Personal and group *ingenio* were positively related to familism ( $r = 0.331, p < 0.001$ ;  $r = 0.336, p < 0.001$ ) while negative affect *ingenio* was negatively related to familism ( $r = -0.196, p < 0.001$ ). Contrary to hypotheses, the *Ingenio* Scale was not significantly related to the pressure to acculturate with the exception of the significant positive relationship between pressure to acculturate and group *ingenio* ( $r = 0.168, p = 0.003$ ). Additionally, the *Ingenio* Scale was not significantly related to financial hardship growing up, except for the personal *ingenio* subscale which was positively related ( $r = 0.198, p = 0.001$ ).

**Discriminant validity.** It was hypothesized that the *Ingenio* Scale would demonstrate discriminant validity with Mexican gender roles, discrimination, pressure against acculturation, and depressive symptoms.

**Traditional gender roles.** The hypothesis regarding traditional Mexican gender roles was partially supported. The negative affect and group *ingenio* subscales were unrelated to endorsement of Mexican gender roles ( $r = 0.051, p = 0.204$ ;  $r = 0.063, p = 0.154$ ), which supported the hypothesis. However, contrary to the hypothesis, the personal *ingenio* subscale was positively related to Mexican gender roles ( $r = 0.168, p = 0.003$ ).

**Discrimination.** The hypothesis related to discrimination was also partially supported. As hypothesized, the negative affect subscale was unrelated to discrimination ( $r = 0.022, p = 0.362$ ); however, the personal *ingenio* and group *ingenio* subscales were



positively related to discrimination ( $r = 0.177, p = 0.002$ ;  $r = 0.172, p = 0.002$ ), which did not support the hypothesis.

**Depression.** In examining the relationship between depressive symptoms and the *Ingenio* Scale, the hypotheses were partially supported. The personal and group *ingenio* subscales were unrelated to depressive symptoms ( $r = 0.056, p = 0.181$ ;  $r = 0.072, p = 0.122$ ), supporting the hypothesis. Contrary to the hypothesis, the negative affect subscale was significantly related to depressive symptoms ( $r = 0.106, p = 0.043$ ).

**Pressure against acculturation.** Regarding the relationship between the *Ingenio* Scale and the pressure against acculturation, the hypotheses were partially supported. As hypothesized, the group *ingenio* subscale was unrelated to the pressure against acculturation ( $r = 0.007, p = 0.456$ ). However, the negative affect and personal *ingenio* subscales were significantly related to the pressure against acculturation. The negative affect subscale was positively related to the pressure against acculturation ( $r = 0.249, p < 0.001$ ) while the personal *ingenio* subscale was negatively related to the pressure against acculturation ( $r = -0.117, p = 0.028$ ).

**Incremental validity.** Three sets of two hierarchical regressions were conducted, examining both scales of resilience as separate outcomes (Table 10). One scale of resilience, the Resilient Coping Scale, was intended to measure the individual's belief that they can overcome adversity. Meanwhile, the other scale of resilience, the Brief Resilience Scale, was intended to measure the individual's experiences with overcoming adversity. It was hypothesized that the *Ingenio* Scale would predict resilience, above and beyond familism, Values in Action subscales, and personality traits such as openness to experience and conscientiousness.

In Step 1, familism, Values in Action subscales, or the personality traits (i.e., openness to experience and conscientiousness) were entered. In Step 2, the three subscales of *ingenio* were added in addition to the Step 1 variables. The *Ingenio* Scale predicted belief of resilience above and beyond personality traits ( $\Delta F = 21.63, p < .001$ ), general cultural values ( $\Delta F = 8.319, p < .001$ ), and familism ( $\Delta F = 21.86, p < .001$ ). However, the *Ingenio* Scale did not demonstrate this incremental validity with the measure of resilience regarding an individual's experiences in being resilient.

## **Discussion**

This study proposed a measure for *el ingenio mexicano* that was based on the items developed in Study One. The measure was hypothesized to have a three-factor solution that consisted of subscales measuring the affect, belief, and practice related to *ingenio*. After conducting EFA and supplemental analyses, including Velicer's MAP test and parallel analyses, a three-factor solution was found to be most appropriate. The first factor consisted of the items reflecting negative affect about the individual, their family, and other Mexican people using *ingenio*, but did not include the positive affect items. The second factor reflected *ingenio* at a personal level as it was composed of items that reflected affect, practice, and belief related to *ingenio* in the individual. The third factor encompassed *ingenio* at a group level as it included the positive affect and belief items related to the experiences of one's family and other Mexican people. Thus, the hypothesized three-factor solution (i.e., practice, belief, affect) was partially supported. Two of the three factors identified in the EFA differed conceptually from those hypothesized with the exception of the first factor, which was related to affect *ingenio*. However, it was originally hypothesized that a factor reflecting both positive and

negative affect would emerge, while the identified first factor reflected only negative affect.

Unexpectedly, the items involving negative affect related to one's family and other Mexican people loaded onto the negative affect factor rather than the group-level *ingenio* factor. This suggests that the strength of the negative affect an individual feels related to *ingenio* may be separate from the relationships the individual has with their family or other Mexican people. Previous research in systems frameworks such as couples and family therapy has demonstrated similar effects where the individual may be less likely to notice anything in the relationship outside the negative affect, a phenomenon known as negative sentiment override (Gottman et al., 2019). Overall, the three-factor model was consistent with the various levels of *ingenio* discussed in the interviews in Study One as participants discussed *ingenio* at the levels of individual, family, and community. It may be that the sample in Study Two was more oriented to their individual, familial, and community systems than the participants in Study One. It is important to note that most of the participants from Study Two were born in the United States, contrary to the majority Mexico-born sample in Study One.

This study also sought to validate the final version of the *Ingenio* Scale, which included 26 items and three subscales. The CFA supported the three-factor model as indicated by the model fit. The *Ingenio* Scale also demonstrated good reliability across the three subscale scores. Further, the measure demonstrated adequate concurrent, discriminant, and incremental validity.

In terms of the concurrent validity, the three subscales of the *Ingenio* Scale were related to familism in the expected direction. Researchers have called for more research

examining the relationships between all Mexican cultural values to demonstrate their relatedness as cultural strengths (Smith-Morris et al., 2013). The correlation found between the *Ingenio* Scale and another Mexican cultural value (familism) highlights how the connections between cultural values contribute to the well-being of Mexican/Mexican Americans.

The three subscales of the *Ingenio* Scale were also related to overall ethnic identity (EIS-BF total score). However, when examining the relationship of the *ingenio* subscales and the individual components of ethnic identity, the personal and group *ingenio* subscales were not related to ethnic identity affirmation. The items for the affirmation subscale of the EIS-BF consists only of negatively worded items that are reverse-coded to capture the positive feelings towards one's ethnic background (Douglass and Umaña-Taylor, 2015). Researchers have suggested that the EIS affirmation subscale is actually capturing a lack of negative feelings about one's ethnic identity, rather than ethnic identity affirmation (Meca et al., 2021). Thus, the negative affect subscale of the *Ingenio* Scale may have been the only subscale related to the EIS-BF affirmation subscale because both are comprised of negatively-worded items. This was further supported given that the one-item reflecting a positively-worded item for affirmation was positively related to group *ingenio*. It may be possible that a subscale consisting of only positively-worded statements would yield different results.

Regarding discriminant validity, the *Ingenio* Scale demonstrated partial support for discriminant validity with Mexican gender roles, discrimination, depressive symptoms, and pressure against acculturation. While the negative affect subscale was unrelated to gender roles and discrimination, it was positively related to depressive

symptoms and pressure against acculturation. It may be that individuals who are experiencing higher levels of depressive symptoms are more likely to endorse negative experiences and emotions such as the items in the negative affect subscale and the pressure against acculturation subscale that measures experiencing discomfort around being perceived as “less Mexican.” Individuals may endorse more pessimism when experiencing higher levels of depressive symptoms (Joiner et al., 2001).

Contrary to the hypotheses, personal and group *ingenio* were positively related to discrimination. These results are consistent with the literature on ethnic identity indicating that individuals who have higher levels of ethnic identity are more likely to perceive discrimination due to greater awareness of their status as ethnic minorities (Meca et al., 2020). Given that personal and group *ingenio* are related to higher levels of ethnic identity, individuals who hold *ingenio* to a higher regard may also have a stronger ethnic identity which makes them more likely to notice discrimination.

The *Ingenio* Scale, measuring the proposed construct *el ingenio mexicano* as a cultural value, demonstrated the connection between other Mexican cultural values such as familism and ethnic identity. There is also initial evidence for the validity for the *Ingenio* Scale in terms of concurrent, discriminant, and incremental validity. However, these construct validity findings were more mixed depending on the subscales of the *Ingenio* Scale. In some cases, personal and group *ingenio* had similar effects on discrimination, pressure to acculturate, and familism, while negative affect did not. However, in other cases, both personal *ingenio* and negative affect shared similar relationships with gender roles while group *ingenio* did not. These findings suggest the

relatedness of the three subscales and indicate that *ingenio* on a personal level, on a group level, and in relation to negative affect have some level of distinction.

### **Limitations**

There are two main limitations in this study. First, the current study used the same participants to conduct the EFA, CFA, reliability, and validity analyses. While this was conducted in this manner given the small sample size in relation to the 30-item scale, it may be that the CFA model fit would be different with a larger sample size and a more heterogeneous sample. Future studies should replicate the three-factor solution and model in separate samples.

Second, this study had a homogenous sample in terms of nativity. An overwhelming number of participants were born in the United States ( $n = 248$ ; 93.3%). As noted in Study One, the *Ingenio* Scale was developed from thematic analysis with mostly Mexico-born participants. The items and hypothesized factors were based on a majority first-generation immigrant sample. In the present study, the *Ingenio* Scale was tested and validated in a majority U.S.-born sample. It is possible that the factor structure may differ in a sample of more Mexico-born individuals.

### **Study Three**

The purpose of Study Three was to further examine the psychometric properties of the *Ingenio* Scale using a sample of Mexican nationals living in Mexico. This part of the study was not preregistered, as it used a sample which became unexpectedly available through Prolific. Originally, these participants were recruited for Study Two as these individuals were born in Mexico. However, the sample was currently living in Mexico and had mixed levels of English proficiency, so it was determined that this sample would

be used to test the *Ingenio* Scale in an exploratory manner in a separate study. To address the limitations of testing the *Ingenio* Scale on a majority U.S.-born sample in Study Two, this study sought to examine if the same factors are present in a sample of Mexico-born individuals living in Mexico. Additionally, this study would further examine the validity and reliability of the *Ingenio* Scale.

## **Methods**

### ***Recruitment and Compensation***

Participants were recruited from Prolific. Latine participants who specified on their Prolific profile that they were born in Mexico and were at least 18 years old were allowed to view the study on Prolific. After reviewing the consent form and study procedures, participants were asked to provide consent or decline. If participants declined, they were removed from the study and were not asked further questions. If participants consented, participants continued to the survey. The survey included demographic questions followed by questions about their experiences as a self-identified Mexican and their cultural values. Participants also responded to questions regarding *el ingenio mexicano* including the scale items developed and other measures of mental health, adjustment, and personality. After completing the survey, participants were compensated \$12 per hour based on the time they took to complete the survey. The average time of completion was 25.4 minutes.

### ***Participants***

A total of 100 participants consented to participate in the study. Participant ages ranged from 19 to 52 years old ( $M = 25.18$ ;  $SD = 6.8$ ). Most participants identified as men (56%) while 38% of the sample identified as women and 5% identified as gender

non-conforming, nonbinary, agender, or genderqueer. One participant did not disclose their gender. All participants identified their ethnicity as Mexican and were born in Mexico.

In describing their financial situation growing up, most participants ( $n = 55$ ; 55%) reported that their family “met their basic needs and had a little left over” and 26% of participants ( $n = 26$ ) noted that their family “just met their basic needs and lived paycheck to paycheck.” About 20% of the sample shared that their family either “struggled financially and had unmet basic needs” ( $n = 5$ ; 5%) or “lived comfortably and did not worry about money” ( $n = 13$ ; 13%). In regard to their current financial situation, most participants described their financial situation as “meeting needs with a little left over” ( $n = 53$ ; 53%). Other participants described their financial situation as “struggling financially and have unmet basic needs” ( $n = 4$ ; 4%), “just meeting basic needs and living paycheck to paycheck” ( $n = 31$ ; 31%), and “living comfortably and do not worry about money” ( $n = 12$ ; 12%).

In terms of education, 28% of participants reported obtaining an undergraduate degree ( $n = 28$ ). Eleven participants (11%) reported some postgraduate education or obtaining a postgraduate degree while 39% of participants reported currently working towards an undergraduate degree ( $n = 39$ ). Five participants (5%) reported completing vocational or technical training, while one participant reported completing some high school (1%) and sixteen participants reported completing high school (16%).

Participants also rated their English and Spanish language skills. In regard to their English skills, 86 participants (86%) rated themselves as “good” or “excellent.” Twelve participants (12%) rated their English as “poor” and two participants (2%) rated their



English language skills as “adequate.” In terms of Spanish language skills, 88 participants (88%) described their Spanish as “excellent.” Nine participants (9%) rated their Spanish as “good” and three participants (3%) rated their Spanish language skills as “adequate.”

### ***Measures***

**Demographics.** Participants provided information regarding their gender, age, nativity, current living situation, socioeconomic status (present and growing up), economic hardships experienced, education, and language preferences and fluency.

**Ethnic Identity.** The Ethnic Identity Scale–Brief Form (EIS-BF) was used to measure participants’ ethnic identity (Douglass & Umaña-Taylor, 2015; Umaña-Taylor et al., 2004). The exploration subscale (3 items;  $\alpha = 0.803$ ) captures the participant’s sense of exploring their ethnic identity through their participation in activities that teach them about their ethnic background. The resolution subscale (3 items;  $\alpha = 0.922$ ) captures the participant’s clarity on what their ethnic identity means to them. Lastly, the affirmation subscale (3 items;  $\alpha = 0.824$ ) captures the participant’s positive feelings towards their ethnic background. Items for the affirmation subscale are reverse-coded due to the negatively worded items. Additionally, one item was added separately that was positively worded (“I feel positively about my ethnicity”). This item was included in the analyses as a single indicator of affirmation to explore whether there would be different results than with the negatively worded affirmation subscale. Item ratings ranged from 1 (*Does not describe me well*) to 5 (*Describes me very well*). Each subscale was scored as an average of all the items. Additionally, a separate variable was created to reflect a total score of ethnic identity.

**Familism.** An individual's adherence to the cultural value of *familismo* was assessed using the familism obligation subscale of the Mexican American Cultural Values Scale (MACVS), which was developed in a sample of Mexico-origin families (Knight et al., 2010). The familism obligation subscale (5 items;  $\alpha = 0.641$ ) assesses how strongly an individual believes that they should be fulfilling family obligations to be able to take care of the family. Item ratings ranged from 1 (*Not at all*) to 5 (*Completely*). The scale was scored as an average of all the items.

**Mexican Gender Roles.** Participants' valuing of traditional gender roles in Mexican culture (i.e., *machismo* and *marianismo*) was measured using the gender roles subscale of the Mexican American Cultural Values Scale (MACVS; Knight et al., 2010). Item ratings ranged from 1 (*Not at all*) to 5 (*Completely*). The scale was scored as an average of all the items. Reliability of the scale was assessed by using Cronbach's alpha ( $\alpha = 0.644$ ).

**Depressive Symptoms.** Depressive symptoms were assessed using the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has been used and measured in samples of diverse Mexican participants (Donlan & Lee, 2010; Lara et al., 2015). The PHQ-9 has a total of 9 items ( $\alpha = 0.859$ ). Item ratings ranged from 0 (*Not at all*) to 3 (*Nearly every day*). A total score was calculated for each participant by summing all item ratings.

**Brief Resilience Scale.** Resilience was measured using the Brief Resilience Scale (Smith et al., 2008). The Brief Resilience Scale includes six items rated on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*) measuring how individuals cope with difficult times ( $\alpha = 0.684$ ). Items include "I tend to bounce back quickly after hard times" and "I

usually come through difficult times with little trouble.” The scale was scored as an average of all the items.

**Resilient Coping.** Resilient coping was measured using the Brief Resilient Coping Scale (BRCS; Kocalevent et al., 2017). This measure of resilience includes four questions examining behaviors related to coping to problems ( $\alpha = 0.707$ ). A mean score was calculated for this scale. Items include “I look for creative ways to alter difficult situations” and “I actively look for ways to replace the losses I encounter in life.” Participants rated the items using a scale ranging from 1 (*Does not describe me at all*) to 5 (*Describes me very well*).

**Conscientiousness and Openness.** Conscientiousness and Openness were measured using the respective HEXACO subscales (Ashton & Lee, 2009). Items were rated from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The conscientiousness subscale ( $\alpha = 0.704$ ) included 10 items such as “I often push myself very hard when trying to achieve a goal” and “I plan ahead and organize things, to avoid scrambling at the last minute.” Meanwhile, the openness subscale ( $\alpha = 0.690$ ) included 10 items such as “People have often told me that I have a good imagination” and “I like people who have unconventional views.” Each subscale was scored as an average of all the items.

## **Results**

### ***Exploratory Factor Analysis***

Exploratory factors analysis (EFA) was conducted in SPSS Version 25 using principal axis factoring with an oblimin rotation. The data was deemed suitable for EFA after reviewing the Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO) and Bartlett’s test of Sphericity results (KMO = .725; Bartlett’s Test:  $p < 0.001$ ). A three-

factor solution was used to reflect the hypothesized three factors from Study Two. Factor loadings for the three-factor solution are shown in Table 11. A threshold of 0.40 was used instead in accordance with more appropriate guidelines as with Study Two (Furr, 2011). Five items were deleted due to low factor loadings (See Appendix F for more details on items deleted and Appendix G for the final scale and factors).

Factor 1 was labeled *Negative Affect*. It captured the negative affect one may experience when observing *ingenio* within oneself, their family, and other Mexican people. Factor 2 was labeled *Belief in Ingenio* and captured the belief of *ingenio* as a tool that helps an individual, family, or other Mexican people overcome difficult situations. Lastly, Factor 3 was labeled *Practice of Ingenio*. Factor 3 consisted of the practice of *ingenio* through creative problem solving, reusing, and repurposing materials, and prioritizing home repair.

### ***Reliability of the Ingenio Scale***

The reliability of the subscale scores of the *Ingenio* Scale were examined by calculating the internal consistencies of the subscales (i.e., Cronbach's alpha). Each subscale reflected the three-factor solution from the EFA. Items were rated on a 5-point scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The negative affect subscale had nine items ( $M = 2.46$ ;  $SD = 0.6$ ) and the scale score had a reliability of  $\alpha = 0.733$ . The practice of *ingenio* subscale had ten items ( $M = 4.20$ ;  $SD = 0.7$ ) and the scale score had a reliability of  $\alpha = 0.833$ . Lastly, the belief of *ingenio* subscale had five items ( $M = 4.66$ ;  $SD = 0.6$ ) and the scale score had a reliability of  $\alpha = 0.657$ . Overall, the practice and negative affect subscales demonstrated good reliability while the belief

subscale had acceptable reliability. Meanwhile, the full *Ingenio* Scale was comprised of 24 items ( $M = 4.42$ ;  $SD = 0.5$ ) and had a reliability of  $\alpha = 0.852$ .

### ***Scale Intercorrelations***

The correlations between the subscales and total *Ingenio* Scale were conducted for the total sample and by gender and nativity. Table 12 shows the correlations between the *Ingenio* subscales (i.e., negative affect, personal ingenio, and group ingenio) and the *Ingenio* Scale among women and men while Table 13 shows the correlations among agender/genderqueer/nonbinary participants and total participants. All the correlations were in the expected direction and there were no differences in direction of the correlations among each group.

### ***Validity***

Means, standard deviations, and correlation coefficients among the validity measures are presented in Table 14. It was hypothesized that the *Ingenio* Scale would demonstrate concurrent validity with ethnic identity, familism, and financial hardship. The hypothesis regarding ethnic identity was partially supported: two subscales, practice and belief of the *Ingenio* Scale were related to Ethnic Identity Scale-Brief total scores. The negative affect subscale was not significantly related to ethnic identity ( $r = -0.139$ ,  $p = -0.139$ ). After examining the relationship between each dimension of ethnic identity (i.e., exploration, resolution, and affirmation), only exploration and resolution were significantly related to *ingenio* negative affect, personal *ingenio*, and group *ingenio*. Affirmation was not significantly related to negative affect ( $r = -0.110$ ,  $p = 0.138$ ), practice ( $r = 0.060$ ,  $p = 0.278$ ), or belief of *ingenio* ( $r = -0.045$ ,  $p = 0.328$ ). One item

reflecting affirmation using positively wording was also included in the analyses to explore whether there would be different results than with the negatively worded affirmation subscale. The one-item of affirmation was significantly related to negative affect ( $r = -0.231, p = 0.010$ ) and practice ( $r = 0.169, p = 0.047$ ), but was not significantly related to belief ( $r = 0.080, p = 0.214$ ).

Contrary to the hypothesis, the *Ingenio* Scale was not significantly related to familism. Additionally, the *Ingenio* Scale, including negative affect ( $r = 0.101, p = 0.158$ ) and practice ( $r = -0.104, p = 0.151$ ) was not significantly related to financial hardship growing up, except for the belief of *ingenio* subscale which was negatively related ( $r = -0.214, p = 0.016$ ). It is important to note that the direction of this effect was the opposite of what was expected.

**Discriminant validity.** It was hypothesized that the *Ingenio* Scale would demonstrate discriminant validity with Mexican gender roles and depressive symptoms.

**Traditional gender roles.** The hypothesis regarding traditional Mexican gender roles was partially supported. The negative affect and belief of *ingenio* subscales were unrelated to endorsement of traditional Mexican gender roles ( $r = 0.018, p = 0.429$ ;  $r = 0.040, p = 0.348$ ), which supported the hypothesis. However, contrary to the hypothesis, the practice of *ingenio* subscale was positively related to traditional Mexican gender roles ( $r = 0.243, p = 0.007$ ).

**Depression.** In examining the relationship between depressive symptoms and the *Ingenio* Scale, the hypotheses were partially supported. The practice of *ingenio* subscale was unrelated to depressive symptoms ( $r = -0.035, p = 0.363$ ), supporting the hypothesis.

Contrary to the hypothesis, the negative affect and belief of *ingenio* subscale were significantly related to depressive symptoms ( $r = 0.259, p = 0.005$ ;  $r = -0.194, p = 0.026$ ).

**Incremental validity.** Two sets of hierarchical regressions were conducted examining both scales of resilience as an outcome (Table 15). Similar to Study Two, the Resilient Coping Scale was intended to measure the individual's belief that they can overcome adversity. Meanwhile, the Brief Resilience Scale was intended to measure the individual's experiences with overcoming adversity. I hypothesized that the *Ingenio* Scale would predict resilience, above and beyond familism and personality traits such as openness to experience and conscientiousness.

In Step 1, familism or the personality traits (i.e., openness to experience and conscientiousness) were entered. In Step 2, the three subscales of *ingenio* were added in addition to the Step 1 variables. The *Ingenio* Scale predicted belief of resilience above and beyond personality traits ( $\Delta F = 11.629, p < 0.001$ ) and familism ( $\Delta F = 14.745, p < 0.001$ ). The *Ingenio* Scale also predicted the behavioral measure of resilience regarding an individual's experiences in being resilient above and beyond personality traits ( $\Delta F = 3.117, p = 0.030$ ) and familism ( $\Delta F = 3.289, p = 0.024$ ).

## Discussion

This study sought to further validate the *Ingenio* Scale from Study Two in a separate sample that consisted of only individuals who were born in Mexico. This study drew from a sample of 100 Mexico-born individuals living in Mexico currently. The measure was hypothesized to have a three-factor solution that consisted of subscales measuring the negative affect, personal *ingenio*, and group *ingenio* as in Study Two. After conducting EFA, a three-factor solution consisting of negative affect, practice of

*ingenio*, and belief of *ingenio* was found to be most appropriate. The first factor consisted of the items reflecting *Negative Affect* about the individual, their family, and other Mexican people using *ingenio* and included two positive affect items that were reverse-coded. The second factor reflected the *Practice of Ingenio* at a personal level as it included behaviors that the individual may do such as creative problem solving, reusing/repurposing materials, and prioritizing home repair. The third factor encompassed the *Belief of Ingenio* as it included items that related to the belief that *ingenio* was used as a way to overcome difficult experiences. Thus, the hypothesized three-factor solution (i.e., negative affect, personal *ingenio*, and group *ingenio*) was partially supported. The three factors identified in the EFA differed conceptually from those hypothesized except for the first factor, which was related to negative affect. However, this factor structure shared a lot of overlap with the hypothesized factors. For example, the practice subscale only included items related to the individual. But the belief factor also included items related to the individual which suggests that the practice subscale did not capture all the items related to the individual.

The three-factor solution was also shown to be partially valid by the concurrent, discriminant, and incremental validity demonstrated. In terms of the concurrent validity, the *Ingenio* Scale was related to the total EIS-BF measure and to some of the subscales such as the resolution subscale. However, this may stem from the discrepancy between the affirmation scale discussed in Study Two. The positively-worded item for affirmation may provide initial evidence that if the affirmation subscale exclusively consisted of positively-worded items, it may contribute to distinct results. These results are also to be taken with some caution as an ethnic identity is likely to have a different meaning for



Mexican nationals living in Mexico than for Mexican Americans living in the U.S., as the constructs of race and ethnicity are highly context-dependent. For Mexican nationals living in Mexico, “Mexican” may refer to a national, ethnic, and racial identity, whereas for Mexican Americans it refers specifically to an identity related to one’s ethnicity (Fox, 2006).

Contrary to the hypothesis, the *Ingenio* Scale was not related to the Mexican cultural value of familism. Similarly, research among Mexican nationals and Mexico-born individuals has called for an expansion of the measurement and conceptualization of familism among this community given a variety of discrepancies between the measure of familism and the tangible family obligations and supports (Fuller-Iglesias and Antonucci, 2016; Hernández et al., 2010; Nehring, 2011). It may be that the *Ingenio* Scale correlates with the behaviors related to familism instead of the belief that it is important to take care of one’s family.

Regarding discriminant validity, the *Ingenio* Scale demonstrated partial support as it related to both depressive symptoms and traditional gender roles. The negative affect subscale was positively related to depressive symptoms while the belief subscale was negatively related to depressive symptoms. These findings suggest that the *Ingenio* Scale may be more closely related to depressive symptoms and may act as a protective factor (i.e., belief) or a risk factor (i.e., negative affect). Other cultural values such as familism have also demonstrated similar effects where they act as both a protective factor and risk factor for internalizing symptoms like depression among Mexican/Mexican Americans (Hernández et al., 2010; Stein et al., 2014).

Contrary to hypothesis, the practice subscale was positively related to traditional Mexican gender roles. The belief and negative affect subscales were not significantly related. This effect may be due to an underlying measure of self-reliance in the practice of *ingenio*. *Machismo*, one of the gender roles, may emphasize self-reliance in men. Given that the sample was composed of mostly men, it may be that they hold higher levels of *machismo* which contributes to their desire to be more self-reliant to fulfill their role in their family system or in society.

The *Ingenio* Scale also demonstrated incremental validity for both scales of resilience, where the *Ingenio* Scale predicted resilience above and beyond personality traits and familism. *Ingenio* may be an important predictor of resilience that moves beyond individual traits and other Mexican cultural values among Mexicans. It may be that the various levels of strengths (i.e., personal, family, and community) emphasizes the importance of resilience within an individual if they believe and see themselves, their family, and other Mexican people *salir adelante* [overcome].

### **Limitations**

Overall, this study demonstrated initial validity for a three-factor model for the *Ingenio* Scale. This study also provided initial evidence for the validity of the *Ingenio* Scale as a cultural value as it relates to a Mexican identity and the well-being of Mexicans. However, it is important to note a few limitations that may limit the inferences that can be drawn from this study. First, this study included Mexican nationals that were living in Mexico. All participants listed Spanish as their first language. Some participants noted that they used a translator on their device to be able to read the items in Spanish. There may have been variations in the items that impacted the measurement of the items.

While participants were asked about their language proficiency using open- and closed-ended questions, it was difficult to determine the participants' proficiency. These results should be taken with caution given this factor.

Second, some of the constructs included in the study were intended to measure specific Mexican American experiences such as discrimination, acculturative stress, and ethnic identity. However, these constructs may have a different meaning in a sample of Mexican nationals living in Mexico. In this study, most of the measures were not examined given these distinct experiences (i.e., acculturative stress and discrimination). Ethnic identity was kept to measure an overall cultural identity, but these results must be taken with caution as this may also be referring to a national identity.

Third, this sample included 100 participants given the unexpected sampling of this particularly hard-to-reach community. Many of the validity analyses were marginally insignificant which may be due to the low power in the analyses. The exploratory factor analysis was conducted as a "small measurement" project in line with DeVellis' (2017) description of conducting measurement studies with hard-to-reach communities. While this study provides critical information of this important cultural value among Mexicans, it may be that the model emerges differently in a larger sample of Mexicans living in Mexico.

### **General Discussion**

This study demonstrated that *el ingenio mexicano* is a salient cultural value among Mexican/Mexican Americans. Overall, *ingenio* can be described as a cultural value that focuses on the importance of and belief in making difficult situations or environments easier to *salir adelante* [overcome] for oneself, one's family, one's

community, or as a culture. The practice of *ingenio* is demonstrated through resourcefulness or engaging in creative problem-solving. *Ingenio* is associated with a range of emotions such as pride, excitement, embarrassment, or frustration. *El ingenio mexicano* is learned through socialization from family, friends, and other environmental influences such as media and news outlets. Additionally, *ingenio* is present across various life domains (e.g., home, work, school).

The *Ingenio* Scale was developed to measure *ingenio* as a cultural value among Mexican/Mexican Americans. Specifically, it measured the extent to which an individual practices and believes in *ingenio* as seen as solving problems creatively, reusing and repurposing materials, and engaging in home repair at the individual, familial, and community level. The *Ingenio* Scale also captures affect related to noticing *ingenio* in oneself, one's family, and other Mexican people. The operational definition and scale developed for the construct of *ingenio* contributes an important foundation for understanding a cultural strength and value that has not yet been established in the psychological literature, but which plays a role in Mexican/Mexican American well-being and adjustment.

This study demonstrated that *ingenio* is a cultural value that was related to yet distinct from other Mexican cultural values. Study One highlighted the role of *ingenio* in the experiences of individuals, families, and the broader Mexican community. Past research examining Mexican cultural values have primarily focused on the individual and have not given much consideration to the experiences at group or systems levels. This study added to the research on cultural values by showing that people may have a multi-layered understanding of cultural values as they relate to the individual themselves, their

family, and their cultural community. The factor structures of the *Ingenio* Scale identified in Study Two further supported this ecological conceptualization of cultural values for Mexican Americans. Specifically in the Mexican American sample in Study Two, a factor that consisted of only items related to one's family and other Mexican people emerged, suggesting that Mexican Americans perceive their individual *ingenio* as separate from that of their family and other Mexican people. However, Study Three suggested that Mexican individuals living in Mexico may not have the same distinctions between individual, family, and cultural community. Rather, the factor structure identified in Study Three indicated that *ingenio* may be more in line with the structure of a cultural value as defined by Schwartz (2006): the three factors identified reflected affect, practice, and belief related to *ingenio* regardless of whether it was at the level of the individual, their family, or other Mexican people. As suggested by the existing literature on acculturation, differences in understanding of cultural values would be expected between Mexican Americans living in the U.S. and Mexican-born individuals living in Mexico (Knight et al., 2010; Rodriguez et al., 2002). Additionally, it may be that Mexican-born individuals in Mexico may have a closer proximity and exposure to the cultural values which results in distinct conceptualizations of these values (Fuller-Iglesias and Antonucci, 2016). However, it is important to note that in both Studies Two and Three, each of the subscales had a relatively high average score which may suggest a possible ceiling effect. As such, it may be helpful to revise some of the items to have a more normally distributed sample. Self-selection of participants in this study may also be contributing to this high ceiling effect which may be found to be different in a more random sample.

Similar to other measures of cultural values, the *Ingenio* Scale includes items that capture the belief in the cultural value and a behavioral aspect of *ingenio*. Measures of other Mexican cultural values such as familism tend to also include the belief component or the behavioral component. Yet, a limited number of scales include all of the dimensions of the cultural value such as the belief, practice, and affect. The *Ingenio* Scale includes items reflecting each of these dimensions, and Studies Two and Three demonstrated the importance of the affect dimension in particular. A factor reflecting affect emerged in both the Mexican and Mexican American samples, suggesting that the affective dimension is an important aspect of cultural values regardless of whether one is in the diaspora of a cultural group or still living in the heritage country.

One of the main goals for this study on *el ingenio mexicano* was to create an operational definition and measure that captured this important construct using an inductive approach which would accurately reflect the experiences of the Mexican/Mexican American community. A community-based approach to defining and measuring *ingenio* was thus central to the design of this study. Sampling from the wider Mexican American community in Study One by recruiting participants through Mexican restaurants and *panaderías* yielded rich data reflecting Mexican Americans' understanding of and experiences with *el ingenio mexicano* and demonstrated the salience of *ingenio* to the community. Beginning the study with exploratory qualitative interviews also allowed for a truly inductive approach to developing the operational definition and initial scale items. The scale items were further refined by soliciting feedback from both Mexican American psychologists and lay community members.

Thus, this study was able to capture the experiences of a diverse range of Mexican/Mexican American individuals.

Studies Two and Three demonstrated the initial reliability and validity of the *Ingenio* Scale in two separate samples of Mexican/Mexican Americans. The internal consistency in both studies were in the “acceptable” and “good” range, thus demonstrating reliability. Across both samples, the *Ingenio* Scale was related to ethnic identity, which was consistent with the finding in Study One that participants described *ingenio* as closely related to their identities as Mexican and/or Mexican American. Furthermore, the *Ingenio* Scale was related to other Mexican cultural values such as familism in Study Two and traditional Mexican gender roles in Study Three. These findings are consistent with previous research suggesting that Mexican cultural values are interrelated (Knight et al., 2010).

### **Limitations**

These studies demonstrated the importance of *el ingenio mexicano*; however, there are some limitations which should be considered. First, differing representation of immigrant generational status across the study samples may have affected the results. The items for the *Ingenio* Scale were created from coding interviews conducted with a sample which was comprised primarily of first-generation immigrants. In contrast, in Study Two, the *Ingenio* Scale was tested in a sample which was majority second- and third-generation immigrants, and analysis yielded different factors than those hypothesized from Study One. Meanwhile, Study Three, which sampled only Mexico-born individuals living in Mexico, found a factor structure consistent with the originally hypothesized factor structure from Study One. It is possible that the Study Three sample yielded a

factor structure consistent with the initial hypotheses because the experiences and perspectives of first-generation Mexican Americans, who were born in Mexico, are more similar to those of other Mexico-born individuals living in Mexico than they are to those of second- and third-generation Mexican Americans. Future research should be aware of potential effects of generational status and ensure that the generational statuses of samples are consistent with study goals.

Sampling was generally a challenge for this study, which may have limited the power of statistical analyses. Although Mexicans are the largest Latine ethnic group in the U.S. (Caldera et al., 2015), it is still difficult to recruit participants from a specific Latine ethnicity due to the ways that crowdsourcing data collection platforms categorize ethnic and/or racial backgrounds. For example, Prolific includes a pre-screener criteria for racial background which includes “Hispanic/Latine,” but does not allow specification of ethnic background (i.e., “Mexican American”). Therefore, there was no way to determine whether individuals recruited were of Mexican descent and/or origin unless the identified “Hispanic/Latine” participants completed an additional, shorter screening survey to report their ethnic background. This extra screening step may have presented a barrier to participant engagement in Study Two and reduced the number of participants. While Study Two fell within general guidelines of having a participant-to-item ratio of 5:1 (DeVellis, 2017), the sample for Study Three was smaller, which may limit the interpretability of the factor structure and validity tests. Future research should recruit larger sample sizes, which would be facilitated by better demographic data collection by services like Prolific.



## Future Directions

As this is the first empirical study of *el ingenio mexicano* to the study author's knowledge, there are many avenues which can be pursued to further develop psychological understanding of this construct. Further validation of the *Ingenio* Scale should be conducted with larger, diverse samples of Mexican Americans. Additionally, future research should continue to explore psychosocial correlates of *ingenio* in order to replicate the current validity analyses and to further understand the conceptualization of *el ingenio mexicano*. For example, it was outside of the scope of this study to further investigate the relationship between experiencing financial hardship and negative affect related to *ingenio*. Future research should also examine the distinction between the general resourcefulness and creativity necessitated by financial constraint and *ingenio* as a culturally-specific value to further refine the conceptualization of *ingenio*.

Second, future research should test the measurement invariance of the *Ingenio* Scale in a sample of Mexican Americans that includes first-, second-, and third-generation immigrants with a sample of Mexican nationals living in Mexico. The present study showed differing factor structures of the *Ingenio* Scale between Mexican and Mexican American samples, though the Mexican sample in Study Three was underpowered. Further testing for potential differences in the factor structure of the *Ingenio* Scale between Mexicans and Mexican Americans of varying generational status could both contribute to a deeper understanding of *ingenio* as a cultural value across Mexicans in Mexico and in the diaspora and of how cultural values may shift in meaning after immigration. Additionally, it may be helpful to also create an *ingenio* measure in Spanish and test establish measurement invariance with the English version to be more

inclusive of Mexicans/Mexican Americans who do not speak English or are more comfortable with Spanish.

The current studies demonstrate the importance of *ingenio* in the well-being and adjustment of Mexican/Mexican Americans, which suggests that an understanding of *ingenio* may have clinical applications. *Ingenio* may act as a protective factor for Mexican/Mexican Americans individuals, as in the present study it was related to resilience, mental health symptoms, and other cultural strengths such as ethnic identity in all three studies. Like other Mexican cultural values, *el ingenio mexicano* may be an important clinical tool to understand the experiences of Mexican/Mexican American clients and tailor culturally responsive clinical interventions (Caldera et al., 2015; Hernández et al., 2010; Morgan Consoli et al., 2016). For example, a clinician may be able to identify a client's personal *ingenio* or that of their family or community to promote recognition of the cultural resources the client has that can facilitate resilience. Additionally, the client may feel further understood if a clinician is able to identify *ingenio*. In describing the salience of *ingenio* in his personal life and well-being, a participant in Study One noted the following:

So, personally, *el ingenio mexicano* has been very useful for me because of the lifestyle I have, because of the values it has instilled in me, [and] the values I want to continue instilling in my family. . . It has given me the tools to be able to be functional or to be able to take advantage of a situation and make even better use of it.

Thus, an understanding of *el ingenio mexicano* as a potentially salient cultural value may add to a clinician's cultural competence in working with Mexican/Mexican American

clients and may provide opportunities to draw on the client's cultural resources to promote positive outcomes.

### **Conclusion**

The present study served to establish the construct of the Mexican cultural value of *ingenio* in the psychological literature through the development of an operational definition for *el ingenio mexicano* as well as the *Ingenio* Scale. While previous research has examined several key Mexican cultural values, none to date has included *el ingenio mexicano*. The findings of this study demonstrated that *el ingenio mexicano* is an important cultural value in the Mexican/Mexican American community which helps the community *salir adelante* [overcome] in the face of systemic oppression and hardship. Items for a scale measuring *ingenio* were developed using an inductive, qualitative approach and the scale was validated with both Mexican American and Mexican samples. Differing factor structures across the two samples suggest further research is needed to examine how cultural values are understood across Mexican American immigrants of differing generational status and Mexican nationals still living in Mexico. The factor structure identified for the Mexican American sample also points to the need for psychological models of cultural values to consider how people's understanding of cultural values may differ at the individual, family, and cultural community levels. Overall, *el ingenio mexicano* should be further investigated as a source of strength and resilience for Mexican/Mexican American individuals and communities.

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## Tables

Table 1. Communalities for Three- and Four-Factor Extractions

	Initial	Extraction 3 Factor	Extraction 4 Factor
I dislike when my family repurposes old items instead of buying a new item.	0.50	0.42	0.51
It bothers me when I have to fix something broken on my own instead of asking a professional to do it.	0.59	0.57	0.57
It is embarrassing to see Mexican people utilize items for something outside of their intended use.	0.44	0.36	0.41
I get frustrated when my family comes up with a quick solution instead of taking more time or spending money.	0.31	0.24	0.24
I become annoyed whenever I have to fix something rather than calling someone else to repair it.	0.58	0.56	0.54
I feel irritated when I see Mexican people try to find different ways to utilize items before throwing them away even if they can just buy a new item.	0.54	0.45	0.63
I feel satisfied when I do things on my own rather than pay someone else to do them for me.	0.33	0.24	0.27
I am pleased when Mexican people try to solve problems regardless of the difficulty or resources at their disposal.	0.53	0.55	0.55
I feel appreciative when I see my family reuse items around the house instead of buying a new item.	0.46	0.37	0.43
I am amazed when I see my family try to solve a problem, regardless of difficulty, to get out of a tough situation.	0.40	0.35	0.37

I am inspired when I see Mexican people come up with creative ways to solve their problems.	0.45	0.46	0.46
I feel proud anytime I solve a problem without having to spend money.	0.47	0.34	0.36
Whenever there is a problem, I first try to figure it out on my own even if the solution is out of the ordinary.	0.41	0.33	0.33
Even when I don't have the necessary tools or resources, I can find an innovative solution to a problem.	0.37	0.29	0.31
I solve problems in unusual ways using the resources I have at hand.	0.54	0.52	0.52
Even if I can afford to pay a repair person, I would rather fix it myself.	0.62	0.53	0.67
When something no longer works, I try to fix it instead of throwing it away and buying a new one.	0.49	0.46	0.46
I will try to fix major appliances myself before I get it fixed by someone else.	0.53	0.47	0.50
I will take things other people throw away to repurpose them.	0.27	0.16	0.26
When I see an object, I try to think of different ways to use the object outside of its intended use.	0.46	0.41	0.50
I can use almost anything to create something that I need or want.	0.50	0.44	0.44
I can cope with whatever obstacle I come across given my ability to make something out of nothing.	0.44	0.35	0.35
Regardless of the difficulty of a problem, my family can overcome it because they can find a solution even if it's unconventional.	0.44	0.37	0.40
Mexican people can figure out how to survive any situation because they come up	0.52	0.49	0.52



with creative solutions.

I learned how to solve problems by watching my family fix problems around the house without having the training to do so.	0.42	0.35	0.35
Mexican people's ability to try to find a way to make something work helps them survive difficult circumstances.	0.49	0.45	0.48
Repairing things by myself instead of seeking professional help or buying new items helps me save money.	0.46	0.41	0.43
I like to think about different uses for items because it helps me be more flexible in my thinking.	0.47	0.41	0.44
One of the reasons my family was able to get by financially was because they found ways to reuse items around the house without having to buy something new.	0.35	0.27	0.29
Mexican people use items in ways outside of their intended use to solve their problems more easily.	0.46	0.37	0.36

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Extraction Method: Principal Axis Factoring.

Table 2. Factor Loadings for Three-Factor Solution – Study Two

Items	Factor 1	Factor 2	Factor 3
I dislike when my family repurposes old items instead of buying a new item.	-0.03	0.08	<b>0.61</b>
It bothers me when I have to fix something broken on my own instead of asking a professional to do it.	-0.28	-0.17	<b>0.67</b>

It is embarrassing to see Mexican people utilize items for something outside of their intended use.	0.22	0.36	<b>0.46</b>
I get frustrated when my family comes up with a quick solution instead of taking more time or spending money.	0.03	0.11	<b>0.46</b>
I become annoyed whenever I have to fix something rather than calling someone else to repair it.	-0.18	-0.11	<b>0.70</b>
I feel irritated when I see Mexican people try to find different ways to utilize items before throwing them away even if they can just buy a new item.	0.19	0.31	<b>0.57</b>
I feel satisfied when I do things on my own rather than pay someone else to do them for me.	0.30	-0.01	-0.29
I am pleased when Mexican people try to solve problems regardless of the difficulty or resources at their disposal.	0.07	<b>-0.66</b>	-0.12
I feel appreciative when I see my family reuse items around the house instead of buying a new item.	0.32	-0.30	-0.17
I am amazed when I see my family try to solve a problem, regardless of difficulty, to get out of a tough situation.	-0.01	<b>-0.61</b>	0.05
I am inspired when I see Mexican people come up with creative ways to solve their problems.	0.08	<b>-0.63</b>	-0.04

I feel proud anytime I solve a problem without having to spend money.	0.26	-0.25	-0.27
Whenever there is a problem, I first try to figure it out on my own even if the solution is out of the ordinary.	0.38	-0.21	-0.16
Even when I don't have the necessary tools or resources, I can find an innovative solution to a problem.	<b>0.46</b>	-0.09	-0.08
I solve problems in unusual ways using the resources I have at hand.	<b>0.67</b>	-0.15	0.05
Even if I can afford to pay a repair person, I would rather fix it myself.	<b>0.63</b>	0.17	-0.30
When something no longer works, I try to fix it instead of throwing it away and buying a new one.	<b>0.58</b>	0.05	-0.24
I will try to fix major appliances myself before I get it fixed by someone else.	<b>0.64</b>	0.16	-0.20
I will take things other people throw away to repurpose them.	<b>0.41</b>	-0.01	0.05
When I see an object, I try to think of different ways to use the object outside of its intended use.	<b>0.66</b>	-0.05	0.18
I can use almost anything to create something that I need or want.	<b>0.64</b>	-0.12	0.13
I can cope with whatever obstacle I come across given my ability to make something out of nothing.	<b>0.52</b>	-0.14	-0.01
Regardless of the difficulty of a problem, my family can overcome it	0.25	<b>-0.42</b>	-0.09

because they can find a solution even if it's unconventional.

Mexican people can figure out how to survive any situation because they come up with creative solutions.	0.16	<b>-0.60</b>	-0.05
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I learned how to solve problems by watching my family fix problems around the house without having the training to do so.	<b>0.45</b>	-0.19	-0.09
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Mexican people's ability to try to find a way to make something work helps them survive difficult circumstances.	0.08	<b>-0.62</b>	-0.05
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Repairing things by myself instead of seeking professional help or buying new items helps me save money.	0.39	0.04	<b>-0.42</b>
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I like to think about different uses for items because it helps me be more flexible in my thinking.	<b>0.55</b>	-0.14	-0.06
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One of the reasons my family was able to get by financially was because they found ways to reuse items around the house without having to buy something new.	<b>0.41</b>	-0.24	0.12
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Extraction Method: Principal Axis Factoring

Table 3. Factor Loadings for Four-Factor Solution - Study Two

Items	Factor 1	Factor 2	Factor 3	Factor 4
I dislike when my family repurposes old items instead of buying a new item.	-0.15	-0.08	0.19	0.62

It bothers me when I have to fix something broken on my own instead of asking a professional to do it.	0.01	-0.11	0.66	0.29
It is embarrassing to see Mexican people utilize items for something outside of their intended use.	0.02	0.22	-0.05	0.57
I get frustrated when my family comes up with a quick solution instead of taking more time or spending money.	0.17	0.14	0.32	0.26
I become annoyed whenever I have to fix something rather than calling someone else to repair it.	0.02	-0.10	0.56	0.39
I feel irritated when I see Mexican people try to find different ways to utilize items before throwing them away even if they can just buy a new item.	-0.08	0.11	-0.05	0.76
I feel satisfied when I do things on my own rather than pay someone else to do them for me.	0.00	-0.11	-0.46	-0.01
I am pleased when Mexican people try to solve problems regardless of the difficulty or resources at their disposal.	0.02	-0.68	-0.01	-0.13
I feel appreciative when I see my family reuse items around the house instead of buying a new item.	0.44	-0.19	0.00	-0.28
I am amazed when I see my family try to solve a problem, regardless of difficulty, to get out of a tough situation.	-0.03	-0.65	0.10	0.00
I am inspired when I see Mexican people come up with creative ways to solve their problems.	0.05	-0.65	0.04	-0.07
I feel proud anytime I solve a problem without having to spend money.	0.04	-0.33	-0.33	-0.08

Whenever there is a problem, I first try to figure it out on my own even if the solution is out of the ordinary.	0.22	-0.24	-0.25	-0.05
Even when I don't have the necessary tools or resources, I can find an innovative solution to a problem.	0.42	-0.05	-0.15	-0.07
I solve problems in unusual ways using the resources I have at hand.	0.52	-0.17	-0.21	0.09
Even if I can afford to pay a repair person, I would rather fix it myself.	0.08	-0.03	-0.81	0.19
When something no longer works, I try to fix it instead of throwing it away and buying a new one.	0.32	-0.01	-0.47	-0.01
I will try to fix major appliances myself before I get it fixed by someone else.	0.23	0.02	-0.61	0.15
I will take things other people throw away to repurpose them.	0.56	0.12	0.06	-0.10
When I see an object, I try to think of different ways to use the object outside of its intended use.	0.72	0.02	0.01	0.06
I can use almost anything to create something that I need or want.	0.53	-0.13	-0.13	0.13
I can cope with whatever obstacle I come across given my ability to make something out of nothing.	0.31	-0.21	-0.25	0.10
Regardless of the difficulty of a problem, my family can overcome it because they can find a solution even if it's unconventional.	0.05	-0.51	-0.20	0.03

Mexican people can figure out how to survive any situation because they come up with creative solutions.	0.02	-0.68	-0.07	0.01
I learned how to solve problems by watching my family fix problems around the house without having the training to do so.	0.32	-0.21	-0.21	-0.03
Mexican people's ability to try to find a way to make something work helps them survive difficult circumstances.	-0.04	-0.69	-0.04	-0.01
Repairing things by myself instead of seeking professional help or buying new items helps me save money.	0.04	-0.06	-0.58	-0.08
I like to think about different uses for items because it helps me be more flexible in my thinking.	0.52	-0.10	-0.15	-0.08
One of the reasons my family was able to get by financially was because they found ways to reuse items around the house without having to buy something new.	0.46	-0.19	0.06	0.00

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Extraction Method: Principal Axis Factoring  
 Rotation Method: Oblimin with Kaiser  
 Normalization

Table 4. Parallel Analysis Eigenvalues

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Root	Raw Data Eigenvalues	Means	Percentile
1	9.045	1.674	1.762

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2	2.344	1.578	1.645
3	2.287	1.511	1.565
4	1.434	1.450	1.499
5	1.289	1.399	1.448
6	1.032	1.346	1.387

Table 5. Velicer's MAP Test

Factors	Average Squared Partial Correlation	Average Fourth Power Partial Correlation
0	0.0860	.0118
1	0.0190	.0012
2	0.0172	.0010
3	0.0128	.0005
4	0.0126	.0004

Table 6. Correlations between Ingenio Scale among Men and Women – Study Two

	1	2	3	4	M	SD
1. Negative Affect	---	-.492**	-.402**	-.731**	2.2	0.7
2. Personal Ingenio	-.448**	---	.519**	.915**	4.1	0.8
3. Group Ingenio	-.428**	.571**	---	.732**	4.9	0.6



4. Ingenio Scale	-.751**	.886**	.774**	----	4.5	0.6
M	2.2	4.3	4.8	4.6		
SD	0.8	0.6	0.6	0.6		

\*  $p < .05$ , \*\*  $p < .01$ .

Note: Correlations above the diagonal are among women and below the diagonal are among men.

Table 7. Correlations between Ingenio Scale among Nonbinary, Genderqueer, or Agender Participants and Overall Sample – Study Two

	1	2	3	4	M	SD
1. Negative Affect	---	-.490	-.143	-.676*	2.1	0.6
2. Personal Ingenio	-.460**	---	.707*	.928**	4.4	0.4
3. Group Ingenio	-.411**	.524**	---	.779**	5.1	0.7
4. Ingenio Scale	-.737**	.897**	.746**	---	4.7	0.4
M	2.2	4.2	4.9	4.6		
SD	0.7	0.7	0.6	0.6		

\*  $p < .05$ , \*\*  $p < .01$ .

Note: Correlations above the diagonal are among nonbinary, genderqueer, or agender participants and below the diagonal are among the overall sample.

Table 8. Correlations between Ingenio Scale by Nativity – Study Two

	1	2	3	4	M	SD
1. Negative Affect	---	-.452**	-.424**	-.738**	2.3	0.7
2. Personal Ingenio	-.603**	---	.536**	.896**	4.2	0.7
3. Group Ingenio	-.197	.371	---	.755**	4.9	0.6
4. Ingenio Scale	-.713**	.921**	.646**	---	4.5	0.6
M	1.8	4.3	5.0	4.7		
SD	0.5	0.8	0.7	0.6		

\*  $p < .05$ , \*\*  $p < .01$ .

Note: Correlations above the diagonal are among U.S.-born participants and below the diagonal are among Mexico-born participants.

Table 9. Correlations between Study Variables – Study Two

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Negative Ingenio	--	-.460**	-.411**	-.196**	.051	-.138*	-.235**	-.204**	.250**	.022	.079	.249**	.259**	.185**	.106*	.315**	-.070	.111*	.147**	-.095	.155**
2. Personal Ingenio	.460**	--	.524**	.331**	.168**	.235**	.226**	-.009	.253**	.177**	.046	.117*	.475**	.165**	.056	.185**	.206**	.241**	.259**	.096	.478**
3. Group Ingenio	.411**	.524**	--	.336**	.063	.315**	.345**	.033	.372**	.172**	.168**	.007	.406**	.113*	.072	.352**	.183**	.337**	.337**	.128*	.367**
4. Familism	.196**	.331**	.336**	--	.480**	.265**	.211**	-.063	.251**	.057	-.045	.142*	.299**	.250**	.033	.132*	.084	.176**	.309**	.172**	.189**
5. Gender Roles	.051	.168**	.063	.480**	--	.056	.121*	-.153**	.061	.002	.155**	.103*	.098	.121*	.026	.145**	.237**	.086	.189**	.112*	.037
6. ERI - Exploration	-.138*	.235**	.315**	.265**	.056	--	.470**	.032	.836**	.276**	.183**	.103*	.330**	.145**	-.036	.108*	.147**	.279**	.277**	.180**	.242**
7. ERI - Resolution	.235**	.226**	.345**	.211**	.121*	.470**	--	.155**	.835**	.181**	.115*	.193**	.244**	.143*	.069	.210**	.036	.303**	.173**	.152**	.239**
8. ERI - Affirmation	.204**	-.009	.033	-.063	.153**	.032	.155**	--	.327**	.187**	-.073	.210**	.078	.128*	-.093	.234**	.126*	.151**	.076	.004	.014
9. Total ERI	.250**	.253**	.372**	.251**	.061	.836**	.835**	.327**	--	.213**	.150**	.209**	.338**	.189**	-.005	.226**	.133*	.356**	.269**	.186**	.270**
10. Discrimination	.022	.177**	.172**	.057	.002	.276**	.181**	-.187**	.213**	--	.498**	.296**	.137*	.179**	.383**	-.013	.048	.206**	.016	-.065	.196**
11. Pressure to Acculturate	.079	.046	.168**	-.045	.155**	.183**	.115*	-.073	.150**	.498**	--	.463**	-.065	.323**	.450**	-.051	.096	.065	.106*	.174**	.061
12. Pressure against Acculturation	.249**	-.117*	.007	-.142*	-.103*	-.103*	-.193**	-.210**	.209**	.296**	.463**	--	.153**	.313**	.291**	.134*	-.062	-.091	.258**	.235**	-.075
13. Brief Resilient Coping	.259**	.475**	.406**	.299**	.098	.330**	.244**	.078	.338**	.137*	-.065	.153**	--	.441**	.155**	.278**	.276**	.392**	.405**	.284**	.549**

14. Resilience	-.185**	.165**	.113*	.250**	.121*	.145**	.143*	.128*	.189**	.179**	.323**	.313**	.441**	--	.442**	.201**	.105*	.137*	.350**	.261**	.215**
15. Depressive Symptoms	.106*	.056	.072	.033	.026	-.036	.069	-.093	-.005	.383**	.450**	.291**	.155**	.442**	--	.213**	.025	.035	.228**	.242**	.021
16. Conscientiousness	.315**	.185**	.352**	.132*	.145**	.108*	.210**	.234**	.226**	-.013	-.051	.134*	.278**	.201**	.213**	--	.216**	.258**	.467**	.223**	.222**
17. Openness	-.070	.206**	.183**	.084	.237**	.147**	.036	.126*	.133*	.048	.096	-.062	.276**	.105*	.025	.216**	--	.245**	.050	.046	.380**
18. Bravery – VIA	-.111*	.241**	.337**	.176**	.086	.279**	.303**	.151**	.356**	.206**	.065	-.091	.392**	.137*	.035	.258**	.245**	--	.360**	.242**	.455**
19. Perseverance - VIA	-.147**	.259**	.337**	.309**	.189**	.277**	.173**	.076	.269**	.016	.106*	.258**	.405**	.350**	.228**	.467**	.050	.360**	--	.405**	.330**
20. Self- regulation - VIA	-.095	.096	.128*	.172**	.112*	.180**	.152**	.004	.186**	-.065	.174**	.235**	.284**	.261**	.242**	.223**	.046	.242**	.405**	--	.264**
21. Creativity - VIA	.155**	.478**	.367**	.189**	.037	.242**	.239**	.014	.270**	.196**	.061	-.075	.549**	.215**	.021	.222**	.380**	.455**	.330**	.264**	--
M	2.23	4.22	4.89	3.34	1.96	2.48	3.09	3.88	28.36	1.52	2.70	2.47	3.40	3.07	17.38	3.69	3.73	3.78	3.61	3.02	3.75
SD	.729	.711	.629	.844	.899	.880	.797	.342	4.54	.558	.938	1.01	.854	.893	7.19	.616	.693	.816	.851	1.04	1.01

\*  $p < .05$ , \*\*  $p < .01$ .

Table 10. Incremental Validity with Familism, Personality, and VIA – Study Two

<b>Familism</b>	BRCS				Resilience				<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$
	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$								
Step 1				.090	.090	26.21	26.21					.062	.062	17.34	17.34
Familism	.304*	.059	.091					.263	.063	.062					
Step 2				.273	.183	24.50	21.86					.083	.022	5.93	2.06
Familism	.128*	.058	.018					.232	.068	.043					
Negative Affect	-.004	.071	.001					-.167	.084	.015					
- <i>Ingenio</i>															
Personal	.400**	.080	.088					.066	.094	.002					
<i>Ingenio</i>															
Group <i>Ingenio</i>	.254**	.088	.031					-.063	.103	.001					

  

<b>Personality</b>	BRCS				Resilience				<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$
	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$								
Step 1				.128	.128	19.283	26.21**					.041	.041	5.63	5.63**
Conscientiousness	.321**	.082	.031					.261**	.089	.055					
Openness	.278**	.073	.004					.079	.080	.053					
Step 2				.289	.174	22.512	21.64**					.065	.024	3.61	2.20
Conscientiousness	.187*	.080	.018					.211*	.096	.021					

Openness	.183**	.067	.002					.062	.081	.028				
Negative Affect -	.020	.072	.009					-.132	.087	.001				
<i>Ingenio</i>														
Personal <i>Ingenio</i>	.414**	.078	.007					.128	.094	.098				
Group <i>Ingenio</i>	.213**	.088	.001					-.064	.106	.022				
<hr/>														
	BRCS							Resilience						
<b>VIA</b>	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$
<b>Step 1</b>				.373	.373	38.59	38.59**				.146	.146	11.05	11.05**
Bravery	.125*	.060	.016					-.053	.073	.002				
Perseverance	.201**	.057	.045					.296	.070	.065				
Self-Regulation	.057	.044	.006					.103	.054	.014				
Creativity	.348**	.048	.168					.099	.059	.011				
<b>Step 2</b>				.429	.056	27.48	8.32**				.169	.023	7.44	2.38
Bravery	.187	.058	.117					-.039	.074	.001				
Perseverance	.183**	.056	.028					.302	.071	.066				
Self-Regulation	.072	.043	.011					.095	.054	.012				
Creativity	.255**	.051	.089					.100	.065	.009				

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Negative	-.069	.065	.004						
Affect -									
<i>Ingenio</i>									
Personal	.232**	.076	.035						
<i>Ingenio</i>									
Group <i>Ingenio</i>	.096	.081	.005						

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\*  $p < .05$ , \*\*  $p < .01$ .

Table 11. Factor Loadings for Three-Factor Solution – Study Three

Items	Factor 1	Factor 2	Factor 3
I dislike when my family repurposes old items instead of buying a new item.	.007	<b>.670</b>	-.071
It bothers me when I have to fix something broken on my own instead of asking a professional to do it.	-.331	<b>.522</b>	.085
It is embarrassing to see Mexican people utilize items for something outside of their intended use.	.075	<b>.434</b>	.090
I get frustrated when my family comes up with a quick solution instead of taking more time or spending money.	-.117	<b>.464</b>	.124
I become annoyed whenever I have to fix something rather than calling someone else to repair it.	-.219	<b>.489</b>	-.063
I feel irritated when I see Mexican people try to find different ways to utilize items before throwing them away even if they can just buy a new item.	.209	<b>.655</b>	.028
I feel satisfied when I do things on my own rather than pay someone else to do them for me.	<b>.451</b>	-.248	-.026
I am pleased when Mexican people try to solve problems regardless of the difficulty or resources at their disposal.	-.134	-.311	<b>-.483</b>
I feel appreciative when I see my family reuse items around the house instead of buying a new item.	.288	-.366	.120
I am amazed when I see my family try to solve a problem, regardless of difficulty, to get out of a tough situation.	.053	.065	<b>-.460</b>
I am inspired when I see Mexican people come up with creative ways to solve their problems.	-.066	-.201	<b>-.689</b>



I feel proud anytime I solve a problem without having to spend money.	.301	-.238	-.208
Whenever there is a problem, I first try to figure it out on my own even if the solution is out of the ordinary.	<b>.572</b>	-.052	-.182
Even when I don't have the necessary tools or resources, I can find an innovative solution to a problem.	<b>.488</b>	.289	-.404
I solve problems in unusual ways using the resources I have at hand.	<b>.522</b>	-.061	-.121
Even if I can afford to pay a repair person, I would rather fix it myself.	<b>.760</b>	-.129	.276
When something no longer works, I try to fix it instead of throwing it away and buying a new one.	<b>.668</b>	-.090	.037
I will try to fix major appliances myself before I get it fixed by someone else.	<b>.604</b>	.242	-.040
I will take things other people throw away to repurpose them.	<b>.509</b>	-.071	.147
When I see an object, I try to think of different ways to use the object outside of its intended use.	<b>.487</b>	.034	-.165
I can use almost anything to create something that I need or want.	<b>.507</b>	-.001	-.236
I can cope with whatever obstacle I come across given my ability to make something out of nothing.	.251	.029	<b>-.442</b>
Regardless of the difficulty of a problem, my family can overcome it because they can find a solution even if it's unconventional.	.106	.110	<b>-.494</b>
Mexican people can figure out how to survive any situation because they come up with creative solutions.	-.134	.083	<b>-.646</b>

I learned how to solve problems by watching my family fix problems around the house without having the training to do so.	.326	.088	-.252
Mexican people's ability to try to find a way to make something work helps them survive difficult circumstances.	.010	-.093	<b>-.625</b>
Repairing things by myself instead of seeking professional help or buying new items helps me save money.	.311	<b>-.442</b>	.041
I like to think about different uses for items because it helps me be more flexible in my thinking.	.204	-.184	-.176
One of the reasons my family was able to get by financially was because they found ways to reuse items around the house without having to buy something new.	.211	-.083	-.178

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Extraction Method: Principal Axis Factoring

Table 12. Correlations of Subscale by Gender - Study Three

	1	2	3	4	M	SD
1. Negative Affect	---	-.226	-.196	-.688**	2.5	0.7
2. Practice - Ingenio	-.465**	---	.443**	.815**	4.1	0.7
3. Belief - Ingenio	-.236*	.396**	---	.626**	4.7	0.6
4. Ingenio Scale	-.780**	.876**	.587**	----	4.4	0.5
M	2.4	4.3	4.6	4.4		
SD	0.6	0.6	0.6	0.5		

\*  $p < .05$ , \*\*  $p < .01$ .

Note: Correlations above the diagonal are among women and below the diagonal are among men.

Table 13. Correlations of Subscale by Gender and Overall Sample - Study Three

	1	2	3	4	M	SD
1. Negative Affect	---	-.877*	-.542	-.972**	2.3	0.7
2. Practice - Ingenio	-.403**	---	.241	.949**	4.2	1.0
3. Belief - Ingenio	-.235**	.384**	---	.511	5.0	0.6
4. Ingenio Scale	-.754**	.862**	.585**	----	4.6	0.7
M	2.5	4.2	4.7	4.4		
SD	0.6	0.7	0.6	0.5		

\*  $p < .05$ , \*\*  $p < .01$ .

Note: Correlations above the diagonal are among nonbinary, genderqueer, or agender participants and below the diagonal are among the overall sample.

Table 14. Correlations between Study Variables – Study Three

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Negative <i>Ingenio</i>	--	-.403**	-.235**	-.047	.018	-.077	-.118	-.110	-.231*	-.139	-.272**	-.235**	.259**	-.078	-.199*	.101
2. Practice <i>Ingenio</i>	-.403**	--	.384**	.065	.243**	.159	.179*	.060	.169*	.202*	.518**	.234**	-.035	.115	.278**	-.104
3. Belief <i>Ingenio</i>	-.235**	.384**	--	.052	.040	.179*	.287**	-.045	.080	.238**	.402**	.233**	-.194*	.225*	.040	-.214*
4. Familism	-.047	.065	.052	--	.502**	.150	.158	-.057	.052	.150	.209*	.277**	-.290**	.011	.046	-.173*
5. Gender Roles	.018	.243**	.040	.502**	--	-.102	-.001	-.040	-.041	-.070	.154	.183*	-.211*	.138	-.046	-.129
6. EIS – Exploration	-.077	.159	.179*	.150	-.102	--	.568**	-.040	.360**	.851**	.416**	.127	-.023	.150	.315**	-.099
7. EIS – Resolution	-.118	.179*	.287**	.158	-.001	.568**	--	-.036	.512**	.834**	.367**	.171*	-.039	.130	.223*	-.174*
8. EIS – Affirmation	-.110	.060	-.045	-.057	-.040	-.040	-.036	--	.533**	.267**	.021	.068	-.156	-.057	-.140	-.015
9. Positive Aff	-.231*	.169*	.080	.052	-.041	.360**	.512**	.533**	--	.636**	.320**	.200*	-.238**	.178*	.036	-.098
10. Total EIS	-.139	.202*	.238**	.150	-.070	.851**	.834**	.267**	.636**	--	.434**	.183*	-.082	.136	.252**	-.152
11. Resilient Coping	-.272**	.518**	.402**	.209*	.154	.416**	.367**	.021	.320**	.434**	--	.390**	-.228*	.328**	.295**	-.236**
12. Resilience	-.235**	.234**	.233**	.277**	.183*	.127	.171*	.068	.200*	.183*	.390**	--	-.507**	.323**	-.008	-.242**
13. Depressive Symptoms	.259**	-.035	-.194*	-.290**	-.211*	-.023	-.039	-.156	-.238**	-.082	-.228*	-.507**	--	-.316**	.039	.423**
14. Conscientiousness	-.078	.115	.225*	.011	.138	.150	.130	-.057	.178*	.136	.328**	.323**	-.316**	--	.212*	-.135
15. Openness	-.199*	.278**	.040	.046	-.046	.315**	.223*	-.140	.036	.252**	.295**	-.008	.039	.212*	--	.065
16. Hardship	.101	-.104	-.214*	-.173*	-.129	-.099	-.174*	-.015	-.098	-.152	-.236**	-.242**	.423**	-.135	.065	--
M	2.46	4.20	4.66	3.00	1.60	2.86	3.28	3.81	3.49	29.84	3.46	3.15	17.52	3.52	3.77	2.25
SD	.635	.681	.574	.699	.648	.829	.767	.452	.718	4.399	.751	.613	6.19	.564	.573	.757

\*  $p < .05$ , \*\*  $p < .01$ .

Table 15. Incremental Validity with Familism and Personality – Study Three

<b>Familism</b>	BRCS							Resilience						
	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$
Step 1				.044	.044	4.46	4.46*				.077	.077	17.34**	8.15**
Familism	.224*	.106	.044					.243*	.085	.077				
Step 2				.347	.304	12.64	14.75**				.164	.087	5.93**	3.29*
Familism	.181*	.089	.042					.224*	.082	.072				
Negative Affect - <i>Ingenio</i> Practice	-.059	.108	.003					-.142	.099	.021				
<i>Ingenio</i> Belief	.440**	.106	.154					.092	.098	.009				
<i>Ingenio</i>	.300*	.118	.064					.156	.109	.021				
<b>Personality</b>	BRCS							Resilience						
	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$	<i>B</i>	<i>SE</i>	<i>sr</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>F</i>	$\Delta F$
Step 1				.161	.161	9.31**	9.31**				.110	.110	6.02	6.02**
Conscientiousness	.371**	.127	.081					.369**	.089	.110				
Openness	.310**	.125	.060					-.085	.080	.007				

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Step 2				.388	.227	11.93**	11.63**			.191	.080	2.44	3.12*
Conscientiousness	.280*	.113	.062					.335**	.106	.096			
Openness	.176**	.114	.025					-.159	.107	.023			
Negative Affect -	-.041	.105	.002					-.158	.099	.027			
<i>Ingenio</i>													
Practice <i>Ingenio</i>	.403**	.106	.134					.131	.099	.018			
Belief <i>Ingenio</i>	.264*	.118	.050					.081	.111	.006			

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\*  $p < .05$ , \*\*  $p < .01$ .

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## Appendix A: Study One Interview Protocol

### Spanish Version

Después de recibir consentimiento por parte del participante, por favor hacer las siguientes preguntas:

- “¿Ha escuchado sobre el ingenio mexicano?”
  - “Me podría dar unos ejemplos del ingenio mexicano? No hay respuestas correctas o incorrectas. Siéntase comfortable compartiendo su experiencia.”
    - Pueden compartir ejemplos sobre el ingenio mexicano en su vida cotidiana o en la media, historias que han escuchado, etc..
  - ¿Ha visto o notado el ingenio mexicano presente durante este periodo de tiempo con el COVID-19?
    - ¿Como ha impactado el COVID-19 a la presentación del ingenio?
  - Si se les dificulta a los participantes proveer ejemplos, se les puede enseñar los videos o los siguientes ejemplos
    - Podría proveerles un ejemplo de alguien haciendo su aire acondicionado portátil con un motor viejo, un patín viejo, y unos bloques de madera.
    - <https://www.youtube.com/watch?v=o1YpC1Zk5EE&t=5s> video link
    - <https://www.youtube.com/watch?v=0rcjDqqYu5k&t=79s> llantas recicladas video
- “Al pensar en todos estos ejemplos de dicho ingenio, ¿cuál sería su definición del ingenio mexicano?”
  - “¿Cuándo piensa en el ingenio mexicano, que es lo primero que le viene a la mente?”
- “En manteniendo estas conversaciones en mente, vamos hablar sobre la importancia del ingenio.”
  - ¿Qué tan importante es el ingenio mexicano para ti?
  - ¿Cuándo piensas en el ingenio mexicano, que tipo de sentimientos te llegan?
    - ¿En qué situaciones te sientes orgulloso o avergonzado?
  - ¿Qué tan importante diría usted que es el ingenio mexicano para su comunidad?
  - ¿Qué tan importante diría usted que es el ingenio mexicano para la cultura mexicana?
- “Hemos hablado sobre la importancia del ingenio mexicano en sus vidas, la vida de su comunidad, y para la cultura mexicana. Ahora, me gustaría preguntarles

sobre el uso del ingenio mexicano en sus vidas. ¿Hay ocasiones en las cuales usted usa el ingenio mexicano? ¿Cuáles son esas ocasiones?”

- Después de haber discutido eso, hablar sobre las ideas generadas.
  - Hacer que los participantes escriban una oración que describa el ingenio mexicano.
  - “El ingenio mexicano es...”
- ¿Cree usted que el ingenio es algo exclusivo a México, o cree que se puede encontrar en otros países latinoamericanos?
  - ¿En qué otras situaciones se puede encontrar el ingenio?

### English Version

After receiving consent, begin with asking participants the following questions:

- “What have you heard about el ingenio mexicano?”
  - “Could you give some examples of ingenio?” There are no right or wrong answers. Feel free to share what you think.
    - Have them list an example of what they would consider to fit with “el ingenio mexicano.”
    - Ask about what they have noticed about COVID and el ingenio.
      - Has this impacted the perception of *ingenio*?
      - Or the presentation of *ingenio*?
  - If participants are unable to provide answers, prompt a couple of examples of ingenio including, but not limited to the videos linked below.
    - Can provide an example of someone utilizing tampons in a robot to prevent a link.
    - Can also provide an example of someone making their portable A/C unit with an old A/C motor, old skateboard wheels, and leftover blocks of wood.
    - <https://www.youtube.com/watch?v=o1YpC1Zk5EE&t=5s> video link
    - <https://www.youtube.com/watch?v=0rcjDqqYu5k&t=79s> llantas recicladas video
- “As you think about these examples, what would be your definition of ingenio?”
  - “When you hear the word ingenio, what’s the first thing that comes to mind?”
- “In thinking about ingenio, I am going to ask you some questions about the importance of ingenio.”
  - How important is ingenio to you, if at all?



- When you think about ingenio, what kinds of feelings come up for you?
  - In what situations do you feel proud or embarrassed?
    - How important do you think ingenio is for your community, if at all?
    - How important do you think ingenio is for Mexican culture, if at all?
- “We have discussed so far the importance of ingenio in your lives, in your communities, and for Mexican culture. I’m wondering if you ever using *el ingenio mexicano* in your lives. What are some of those times that come to mind?”
- After discussing this, discuss ideas already generated.
  - What are some examples that come up for you when discussing ingenio?
  - Have participants write out a sentence about how they would describe el ingenio.
    - “*El ingenio mexicano* is...”
- Do you think ingenio is something exclusive to Mexico or Mexicans? What about in other Latin American countries?
- In what other situations may you find ingenio?

## Appendix B: Coding Instructions and Guidelines

### Coding Instructions and Guidelines for El Ingenio Mexicano - Study 1

#### Based on guidelines created by Dr. Xiang Zhou and Dr. Christine Wu

In qualitative work, it is critical that we are all familiar with the data and our guidelines so we can be as accurate as possible and demonstrate scientific rigor. So please familiarize yourself with the interviews and these coding guidelines. Please continue revisiting both interviews and coding guidelines throughout this entire process. When conducting thematic coding, it's important to center what we do around our research questions. For this part of the study, we will be focusing on two main research questions:

1. What is the operational definition of ingenio mexicano?
  - a. In other words, how would we define all aspects of ingenio (as a behavior and cultural value/attitude) **based on what participants shared and previous experiences?**
2. What are the different aspects or dimensions of ingenio (themes)?

#### Research Paradigms

Qualitative coding and analysis is centered on science paradigms that guides how we view these research questions, how we view the data, and how we will respond to these research questions. For this particular project, we will be examining ingenio mexicano through a constructivist-interpretive and critical-ideological perspective (Ponterotto, 2005).

- Constructivist-interpretivist paradigm: views meaning as hidden and can be uncovered through reflection which takes place through the dialogue between the researcher and participant (or other participants). In this case, the researcher and participants work together to create these findings through their conversations and interpretations.
  - Goal: understand lived experiences within society
- Critical-ideological paradigm: based on the belief that our lived experiences are informed by power structures present in social and historical contexts. There's a need to understand that reality is constructed within a social-historical context (Ponterotto, 2005).

#### Coding Instructions

1. Coders will familiarize themselves with as much information that is available on el ingenio mexicano through Melissa's dissertation proposal or videos given in the interviews. Additionally, read through the interview guide found in the

Google Drive under Focus Groups (separated by English and Spanish focus groups).

2. Coders will read and code three (3) transcripts after reading through these guidelines. This will serve as a practice round. You are encouraged to write down any and all questions you may have about the coding process. This is imperative to ensure we are all being consistent.
3. For our practice round, we will review the codes created for the first research question:
  - a. What is the operational definition of ingenio mexicano?  
However, please continue to write down thoughts regarding the second research question on the dimensions of ingenio.
4. Coders will read all of the transcripts while jotting down notes. Make sure that you write down whether you have read the transcript on the Box sheet. It's vital that you are familiar with these interviews.
5. Begin coding each transcript (one-by-one), write down every code you develop from each interview on a separate word document. Think about every code you have developed and think about how you would organize them if you had to put them in different groups.
  - a. For example, if you're thinking about creating codes for dimensions of the winter season you may have broad groupings as seen below.
    - i. Holidays
      1. Traditions
      2. Family and friends gathering
      3. Food
    - ii. Weather
      1. Chilly
      2. Snow
      3. Lack of sunlight
    - iii. Affect
      1. Seasonal depression
      2. Joy
6. We will then meet as a group and create a master list of coding categories to combine all of our thoughts.
7. Coders use the master coding sheet to code all the transcripts, any new codes will be discussed and incorporated into the master coding sheet. The following guidelines are important:
  - a. It is important to make the codes fit the data NOT the other way around.
  - b. "You will notice that some pieces of data fit into two or more coding categories, these should be coded according to all relevant categories" (Taylor, Bogdan, & DeVault, 2015)

- c. “You should code both positive and negative incidents related to a theme or coding category” (Taylor, Bogdan, & DeVault, 2015)
8. The goal will be to make sense of all the codes and create a theoretical model in the form of a flow chart, storyline, or table that portrays the interrelationship of these codes and build a “story” that connects the categories. Coders do not necessarily need to be involved in this process, but it is also interesting to see the storyline through and follow into the deep immersion of the data for a solid analysis and conclusion.

## Appendix C: Initial 30-item *Ingenio* Scale

### Affect

#### *Negative valence*

1. I dislike when my family repurposes old items instead of buying a new item.
2. It bothers me when I have to fix something broken on my own instead of asking a professional to do it.
3. It is embarrassing to see Mexican people utilize items for something outside of their intended use.
4. I get frustrated when my family comes up with a quick solution instead of taking more time or spending money.
5. I become annoyed whenever I have to fix something rather than calling someone else to repair it.
6. I feel irritated when I see Mexican people try to find different ways to utilize items before throwing them away even if they can just buy a new item.

#### *Positive valence*

7. I feel satisfied when I do things on my own rather than pay someone else to do them for me.
8. I am pleased when Mexican people try to solve problems regardless of the difficulty or resources at their disposal.
9. I feel appreciative when I see my family reuse items around the house instead of buying a new item.
10. I am amazed when I see my family try to solve a problem, regardless of difficulty, to get out of a tough situation.
11. I am inspired when I see Mexican people come up with creative ways to solve their problems.
12. I feel proud anytime I solve a problem without having to spend money.

### Practice

#### *Creative problem-solving*

13. Whenever there is a problem, I first try to figure it out on my own even if the solution is out of the ordinary.
14. Even when I don't have the necessary tools or resources, I can find an innovative solution to a problem.
15. I solve problems in unusual ways using the resources I have at hand.

#### *Prioritizing home-repair*

16. Even if I can afford to pay a repair person, I would rather fix it myself.

17. When something no longer works, I try to fix it instead of throwing it away and buying a new one.

18. I will try to fix major appliances myself before I get it fixed by someone else.

*Reusing/repurposing*

19. I will take things other people throw away to repurpose them.

20. When I see an object, I try to think of different ways to use the object outside of its intended use.

21. I can use almost anything to create something that I need or want.

**Belief**

*Creative Problem-Solving*

22. I can cope with whatever obstacle I come across given my ability to make something out of nothing.

23. Regardless of the difficulty of a problem, my family can overcome it because they can find a solution even if it's unconventional.

24. Mexican people can figure out how to survive any situation because they come up with creative solutions.

*Home repair*

25. I learned how to solve problems by watching my family fix problems around the house without having the training to do so.

26. Mexican people's ability to try to find a way to make something work helps them survive difficult circumstances.

27. Repairing things by myself instead of seeking professional help or buying new items helps me save money.

*Reusing/upcycling*

28. I like to think about different uses for items because it helps me be more flexible in my thinking.

29. One of the reasons my family was able to get by financially was because they found ways to reuse items around the house without having to buy something new.

30. Mexican people use items in ways outside of their intended use to solve their problems more easily.

**Appendix D: Deleted Items for Mexican American Sample****Positive Affect Items:**

1. I feel satisfied when I do things on my own rather than pay someone else to do them for me.
2. I feel appreciative when I see my family reuse items around the house instead of buying a new item.
3. I feel proud anytime I solve a problem without having to spend money.

**Practice Items:**

4. Whenever there is a problem, I first try to figure it out on my own even if the solution is out of the ordinary.

**Appendix E: Final *Ingenio* Scale for Mexican American Sample****Negative Affect:**

1. I dislike when my family repurposes old items instead of buying a new item.
2. It bothers me when I have to fix something broken on my own instead of asking a professional to do it.
3. It is embarrassing to see Mexican people utilize items for something outside of their intended use.
4. I get frustrated when my family comes up with a quick solution instead of taking more time or spending money.
5. I become annoyed whenever I have to fix something rather than calling someone else to repair it.
6. I feel irritated when I see Mexican people try to find different ways to utilize items before throwing them away even if they can just buy a new item.
7. Repairing things by myself instead of seeking professional help or buying new items helps me save money. (Reverse-coded)

**Personal *Ingenio*:**

8. Even when I don't have the necessary tools or resources, I can find an innovative solution to a problem.
9. I solve problems in unusual ways using the resources I have at hand.
10. Even if I can afford to pay a repair person, I would rather fix it myself.
11. When something no longer works, I try to fix it instead of throwing it away and buying a new one.
12. I will try to fix major appliances myself before I get it fixed by someone else.
13. I will take things other people throw away to repurpose them.
14. When I see an object, I try to think of different ways to use the object outside of its intended use.
15. I can use almost anything to create something that I need or want.
16. I can cope with whatever obstacle I come across given my ability to make something out of nothing.
17. I learned how to solve problems by watching my family fix problems around the house without having the training to do so.
18. I like to think about different uses for items because it helps me be more flexible in my thinking.
19. One of the reasons my family was able to get by financially was because they found ways to reuse items around the house without having to buy something new.



**Personal *Ingenio*:**

20. I am pleased when Mexican people try to solve problems regardless of the difficulty or resources at their disposal.
21. I am amazed when I see my family try to solve a problem, regardless of difficulty, to get out of a tough situation.
22. I am inspired when I see Mexican people come up with creative ways to solve their problems.
23. Regardless of the difficulty of a problem, my family can overcome it because they can find a solution even if it's unconventional.
24. Mexican people can figure out how to survive any situation because they come up with creative solutions.
25. Mexican people's ability to try to find a way to make something work helps them survive difficult circumstances.
26. Mexican people use items in ways outside of their intended use to solve their problems more easily.

## Appendix F: Deleted Items for Mexican Sample

### **Positive affect items:**

1. I feel proud anytime I solve a problem without having to spend money.

### **Belief items:**

2. I learned how to solve problems by watching my family fix problems around the house without having the training to do so.
3. I like to think about different uses for items because it helps me be more flexible in my thinking.
4. One of the reasons my family was able to get by financially was because they found ways to reuse items around the house without having to buy something new.
5. Mexican people use items in ways outside of their intended use to solve their problems more easily.

## Appendix G: Final *Ingenio* Scale for Mexican Sample

### Negative Affect:

1. I dislike when my family repurposes old items instead of buying a new item.
2. It bothers me when I have to fix something broken on my own instead of asking a professional to do it.
3. It is embarrassing to see Mexican people utilize items for something outside of their intended use.
4. I get frustrated when my family comes up with a quick solution instead of taking more time or spending money.
5. I become annoyed whenever I have to fix something rather than calling someone else to repair it.
6. I feel irritated when I see Mexican people try to find different ways to utilize items before throwing them away even if they can just buy a new item.
7. I feel appreciative when I see my family reuse items around the house instead of buying a new item.
8. I am amazed when I see my family try to solve a problem, regardless of difficulty, to get out of a tough situation. (Reverse-coded)
9. Repairing things by myself instead of seeking professional help or buying new items helps me save money. (Reverse-coded)

### Practice:

10. I feel satisfied when I do things on my own rather than pay someone else to do them for me.
11. Whenever there is a problem, I first try to figure it out on my own even if the solution is out of the ordinary.
12. Even when I don't have the necessary tools or resources, I can find an innovative solution to a problem.
13. I solve problems in unusual ways using the resources I have at hand.
14. Even if I can afford to pay a repair person, I would rather fix it myself.
15. When something no longer works, I try to fix it instead of throwing it away and buying a new one.
16. I will try to fix major appliances myself before I get it fixed by someone else.
17. I will take things other people throw away to repurpose them.
18. When I see an object, I try to think of different ways to use the object outside of its intended use.
19. I can use almost anything to create something that I need or want.

**Belief:**

20. I am pleased when Mexican people try to solve problems regardless of the difficulty or resources at their disposal.
21. I can cope with whatever obstacle I come across given my ability to make something out of nothing.
22. Regardless of the difficulty of a problem, my family can overcome it because they can find a solution even if it's unconventional.
23. Mexican people can figure out how to survive any situation because they come up with creative solutions.
24. Mexican people's ability to try to find a way to make something work helps them survive difficult circumstances.