Article

JSPR

Journal of Social and Personal Relationships
2023, Vol. 40(9) 3065–3087

DOI: 10.1177/02654075231167887
journals.sagepub.com/home/spr
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Social environment and moment-to-moment variation in self-construal among Latinx emerging adults: An ecological momentary assessment approach

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Abstract

Self-construal involves how one thinks of themselves in relations to others, including how much one thinks of themselves as separate from others (independent) or connected (interdependent). Researchers have typically assumed these self-perceptions are stable. However, given self-construal's basis in the perceptions of others and the self, it is highly likely that self-construal can vary in different social environments. Thus, the goals of the present study were to examine (1) whether independent and interdependent self-construal fluctuates within-person among Latinx emerging adults from day-to-day and moment-to-moment, and (2) how individuals' social environment is concurrently associated with fluctuations in self-construal. Using ecological momentary assessment (EMA), Latinx emerging adults (N = 191) reported on their independent and interdependent self-construal, as well as aspects of their social environment (occurrence of social interaction, interaction partner, quality of social interaction, and closeness of relationship) twice a day for 14 days, for up to 4058 observations in total. Using multilevel modeling to partition the variance in self-construal at the moment, day, and person level, we found substantial moment-to-moment variation. Further analyses indicated that

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aspects of the social environment were consistently associated with interdependent, but not independent, self-construal. The findings highlight the need to re-conceptualize changes in self-construal as a function of the social environment, and the need to measure aspects of culture, including self-construal, using ecologically valid measures that allow for more dynamic and sensitive assessments.

Keywords
self-construal, interdependence, dynamic, social environment, ecological momentary assessment, Latinx

Introduction

The cultural self emerges as a result of the transactional relationship between an individual and social-level cultural processes, and may include different components of the self, such as ethnic identity, social positions, cultural orientations, and values (Causadias, 2013). Self-construal, or how one defines themselves in relation to others, is one component of the cultural self. Self-construal was first coined by Markus and Kitayama (1991) to describe how individuals from different cultural backgrounds view themselves at a fundamental level; whether as primarily distinct from or inherently connected to others (see Cross et al., 2011 for a review). Individuals with an independent self-construal generally view internal attributes, including traits, abilities, and values, as central to their sense of self. In contrast, those with an interdependent self-construal generally value their close relationships, social roles, and group memberships as essential to their sense of self (Giacomin & Jordan, 2020). For example, a member on a team with an independent self-construal is likely to attribute the team's success to their own ability to perform in a high-pressure situation; whereas a team member with an interdependent self-construal is likely to attribute that same success to the communication among team members while performing. Regardless of what type of self-construal one has, it is an important aspect of self-representation, and has been linked to cognitive processes (e.g., visual attention, see Lin & Han, 2009), positive emotion (van Hemert et al., 2007), health behaviors (Sherman et al., 2011), and physical and mental wellbeing (Maas et al., 2019; Shim et al., 2014).

Most prior work has operationalized self-construal as a stable trait, thus suggesting that the representation one has of themselves is relatively consistent across situations. Moreover, self-construal related to independence and interdependence is commonly inferred based on one's membership to a cultural group (e.g., Japanese individuals are assumed to have an interdependent self-construal while American individuals are assumed to have an independent self-construal, an approach that further assumes stability in self-construal levels within-person). Yet, given the social and relational nature of self-construal, it is reasonable to expect fluctuations in one's self-construal based on the social environment and context in which they are situated. Indeed, some studies have employed an experimental priming approach to activate different self-construal in bicultural individuals (Kemmelmeier & Cheng, 2004). It is important to note that much like other

aspects of the cultural self, changes in self-construal may take place on different timescales, such as changes from one moment to the next, or changes that take place over several years. That said, to date it is unclear if self-construal varies within-person over short periods of time in ecologically valid contexts (i.e., within- and across-days), and what social environment factors might predict such moment-to-moment variation. Although all individuals develop a cultural self, this process may be more salient for individuals from ethnic-minoritized groups, including Latinx individuals, in which their heritage culture may be different from the host culture. Thus, the purpose of this paper is to examine if independent and interdependent self-construal varies within-person on a momentary timescale, and if so, what are the social determinants that may influence this variation.

Independent and Interdependent Self-Construal

Although there are many types of self-construal, Markus and Kitayama (1991) identified two primary types – independent and interdependent self-construal – to describe variation in the way people view themselves. These self-construals differ in the extent to which individuals primarily view themselves as connected to (i.e., interdependent), or distinct from (i.e., independent) others (see Cross et al., 2011 for a review). In its broadest sense, self-construal represents an important aspect of culture in relation to one's self, especially for individuals of ethnic-minoritized backgrounds (see Juang et al., 2012 for a graphic depiction of culture in relation to self, family, and broader value system). Prior work has highlighted the prominence of self-construal in influencing human behavior, including providing a cultural framework for brain function (Han & Humphreys, 2016). There is evidence that interdependent self-construal plays an important role in cultures that emphasize collectiveness and interpersonal relationships, including many Asian, African, and Latin-American cultures (Raj et al., 2016). Indeed, trait-like measures of self-construal indicate associations with emotional health, including depressive symptoms (Su et al., 2013; Yamaguchi et al., 2014), anxiety (Koydemir & Essau, 2018), anger regulation (Akutsu et al., 2016), and social health, including feelings of loneliness (Heu et al., 2019). Yet, because this work operationalized and measured self-construal as a fixed aspect of one's identity, less is known about in-the-moment associations between social environment and self-construal which helps to identify the processes by which one's social environment is related to fluctuations in self-construal. Examining how one's self-construal may vary as a function of the social environment helps us understand how self-construal develops and adapts based on one's situations and experiences. Importantly, this knowledge could inform interventions for individuals struggling with poor social relationships by allowing clinicians and counselors to tune into contextual fluctuations in their clients' sense of self in response to changes in their social environment.

Interestingly, despite an abundance of cross-cultural studies examining self-construal in both individualistic (e.g., American) and collectivistic (e.g., Asian) cultures, self-construal is rarely empirically explored in the Latinx population. As one of the fastest growing ethnic minority groups in the United States (Pew Research Center, 2018), examining development of the cultural self among Latinx individuals, including the

moment-to-moment changes in self-construal, will help advance a better understanding of normative development of ethnic-minoritized individuals. Additionally, examining self-construal may be especially important during the emerging adulthood period, where identity exploration and development of a positive ethnic racial identity is a central task for individuals of ethnic minoritized background (Syed & Mitchell, 2013). Furthermore, in comparison to emerging adults who do not attend college, emerging adults attending college may experience additional stressors relevant to their transition, such as being away from their friends and family and forming meaningful social relationships. Indeed, studies have found that supportive social relationships are associated with better psychological adjustment of emerging adults in college (Azmitia et al., 2013).

Drawing from the concepts of independent and interdependent self-construal (Markus & Kitayama, 1991; Singelis, 1994), and partly from the individualism-collectivism distinction (Hofstede, 1980), we created a bidimensional momentary measure of independent and interdependent self-construal. In line with prior work on self-construal (e.g., Imamoğklu & Karakitapoğklu-Aygüun, 2004), we hypothesized that independent and interdependent self-construal are not opposite ends of a spectrum but distinct orientations that may co-exist within an individual.

Dynamic Measures of Self-Construal

There has been a push in recent years for cultural research to move beyond measurement at one timepoint by utilizing intensive longitudinal designs that capture short-term fluctuations in different aspects of the cultural self (Unger & Schwartz, 2012), such as ethnic identity (Yip & Douglass, 2013). Ecological momentary assessment (EMA) is one such approach that allows for multiple measurements of the same construct over time within individuals, thus allowing a modeling approach that takes into account within-person variability in addition to between-person differences (Smyth & Stone, 2003). EMA techniques have been commonly used to measure constructs that may show short-term fluctuations, including psychological processes such as stress and affect (Scott et al., 2020; Zawadzki et al., 2019; 2021) and the structure and impact of one's social environment on momentary well-being (Bernsetin et al., 2018).

Although there has not been an EMA study to measure self-construal, other work does suggest that aspects of the cultural self can change rapidly on a momentary timescale. It is important to note that we do not suggest that individuals "switch" cultures, but rather, utilize different cultural repertoires in response to different environments (Causadias, 2013). For example, when measured six times throughout a day, there was a significant variability in Chinese American students' ethnic identity (Yip, 2005), suggesting that different ethnic identities may be more salient as a function of their immediate environment. Research on cultural frame switching indicates that individuals demonstrated different cultural behaviors in accordance with culturally relevant cues in the environment (e.g., American vs. Chinese flag; Hong et al., 2000; 2001), once again highlighting the role of one's immediate environment in different aspects of culture. In regards to self-construal specifically, studies have examined how the language of study materials (e.g., Chinese vs. English), as well as words (e.g. "I" vs. "We"), prime independent and

interdependent self-construal in individuals (Gardner et al., 1999; Kemmelmeier & Cheng, 2004; Wang et al., 2015). Taken together, these studies point toward the potential of self-construal to change on a momentary timescale as a function of the environment. In this vein, EMA may be a useful tool for measuring momentary fluctuations in self-construal because of its ability to capture in-the-moment assessments that reflect the influence of one's immediate social environment.

Social Environment and Self-Construal

Self-construal is socially rooted and relational in nature (Cross et al., 2011). In examining the fluctuations of self-construal, we decided to focus on the immediate social environment an individual may come in contact with. It is important to note that one's social environment can be measured in various ways. We focused on both reported social interactions (i.e., did an interaction occur, who was it with, was the interaction enjoyable) and perceptions of social fit (i.e., perceived closeness) as the first step into understanding the moment-to-moment associations between social environment and self-construal.

Given that self-construal is based upon one's definition of self in relation to others, it is likely that an occurrence of social interaction, compared to no social interaction, may activate higher sense of interdependent self-construal within the individual. Secondly, we included the partner of interaction, distinguishing between primary group relationships (i.e., relationships characterized by stability, permanence, and frequent contact, such as family, friend, and romantic partner) and secondary group relationships (e.g., stranger). There is work to show that Latinx individuals are more likely to disclose more personal information to a friend when compared to an acquaintance (Schwartz et al., 2011), thus showing that one's interaction partner can influence behavior and might also predict how one views themselves in relation to others. Lastly, we focused on the subjective experience of the individual, including perceived quality of the interaction and perceived closeness of the relationship. Research has established links between trait-level self-construal and perceived quality of social interactions. Specifically, individuals higher in interdependent self-construal had more positive social interactions in general when compared to those lower in interdependent self-construal (Nezlek et al., 2012). Drawing upon the concept of culture as a situated cognition (Oyserman, 2011) and prior work in cultural frame switching (Hong et al., 2000), we hypothesize that perceived quality of social interactions and perceived closeness of relationship may serve as cues in predicting higher interdependent self-construal in Latinx emerging adults.

The Present Study

The first goal of the present paper was to examine whether independent and interdependent self-construal vary between-person and within-person among Latinx emerging adults, examining both within-person across days and within-person within-days variations. The within-person variance tested whether independent and interdependent self-construal varies from day-to-day and/or moment-to-moment within days, which would highlight the potential for self-construal to fluctuate on a micro-longitudinal timescale.

Such a finding would suggest that researchers have been missing a key component of how self-construal functions in everyday life for individuals, specifically operating as both a contextually situated self-perception (within-person) along with the previously identified stable understanding of oneself in relation to others (between-person). Deconstructing the within-person variance allows us to study how and when self-construal is dynamic, which would allow us to better operationalize and understand how self-construal varies for Latinx emerging adults in everyday life. We hypothesized that independent and interdependent self-construal varies on all levels of measurement (person, day, and moment).

The second goal of the paper was to examine whether one's social environment predicts variance in self-construal. Specifically, we examined whether the occurrence of social interaction, partner of social interaction, quality of social interaction, and perceived closeness of relationship were significant predictors of independent and interdependent self-construal, both at the between- and within-person level. Given the nature of interdependent self-construal, and the relevance of interdependence to the Latinx culture, we hypothesized that these measures of social environment will be positively associated with interdependent self-construal but may not necessarily be associated with independent self-construal.

Methods

Participants

Undergraduate students from a public university in California's San Joaquin Valley participated in this study. There was a total of 191 participants (80.1% female, 19.9% male) aged 18–25 years (M = 19.64, SD = 1.55). All participants identified as Hispanic/Latino/a/x as part of the eligibility criteria. Most participants were born in the U.S. (78.4%) and reported Spanish as their native language (63.7%). Participants reported on the education level of their primary caretaker: more than half received high school education (64.3%) and a smaller portion (22.2%) received tertiary education.

Procedure

All procedures were approved by the Institutional Review Board at the institution where the research was carried out. Recruitment was conducted using a campus-based subject pool system as part of a larger study investigating how individuals experience culture in daily life. Eligible participants scheduled a lab session on campus where they provided informed consent. The study was conducted in two phases: a baseline assessment and an EMA session. The duration of the study was 15 days from the baseline assessment and EMA training (day 1) to the completion of EMA (days 2–15).

At the baseline laboratory assessment, participants completed a questionnaire via Qualtrics assessing demographic information (gender, native language, and nativity) and other measures not included in the present paper. Participants were compensated with course credit for the laboratory assessment. After the completion of the baseline questionnaire, participants were given an option to participate in the EMA portion of the study.

If the participant agreed (93.2% agreement), a trained research assistant conducted the training session with the participant. The training session included accessing and downloading the smartphone app RealLife Exp (LifeData, Marion, IN), creating an account, and reviewing all possible questions of the EMA portion. Participants responded to two measures each day over a course of 14 days using a signal-contingent design, in which they were instructed to respond when prompted. The notifications were randomized to occur between 12pm-4pm and 6pm–10pm, with these timeframes chosen to maximize the likelihood the participant would be in different social environments. This resulted in approximately 4058 observations in total (Range: 2-28 responses per person, $M = 20.43$, $SD = 6.29$). When prompted, participants completed surveys assessing self-construal and social environment among other measures not relevant to the present paper.

Measures

Baseline Measures. Participants reported on their gender, which was recoded into 0 = male and 1 = female for analyses. Participants also reported on their native language by responding to the following prompt: "By native language we refer to the language of that country, spoken by you or your ancestors in that country (e.g., Spanish, Quechua, Mandarin). Note that you may not understand and know how to speak the language, and that is okay. My native language is ?". Based on the responses, native language was coded into 0 = Spanish and 1 = Other. Finally, participants reported on their nativity by responding to the question "In what country were you born?". Responses were coded into 0 = Non-U.S.-born and 1 = U.S.-born.

EMA Measures

Self-construal. We adapted items from the Independent and Interdependent Self-Construals Scale (Singelis, 1994) and the Individualism and Collectivism Scale (Triandis & Gelfand, 1998) to assess independent and interdependent self-construal. From all possible items, authors independently selected items from the scales that they believed would have the potential to vary from one moment to the next. After discussion, authors came to consensus on the selected four items: Items #21 and #27 from the Independent and Interdependent Self-Construals Scale (Singelis, 1994), and 2 items from the Individualism and Collectivism Scale, one each from the horizontal individualism and horizontal collectivism subscales (Triandis & Gelfand, 1998). These items were then modified to prompt participants to respond on their self-construal in the moment. Modifications included adding in "right now" for all items, as well as changing "well-being of my coworkers" to "well-being of others" to be more applicable to more social situations. Independent self-construal was assessed by responses to the statements: "Right now, my personal identity, independent of others, is very important to me," and "Right now I'd rather depend on myself than others." Interdependent self-construal was assessed by responses to the statements: "Right now, the wellbeing of others is important to me," and "Right now, my happiness depends on the happiness of those around me." Participants responded to all items on a scale from 0 (*not at all*) to 6 (*very true*). Because there were only two items for independent and interdependent self-construal, we were unable to

conduct standard reliability analyses, but we were able to conduct correlation analyses to assess the degree to which these items were correlated. There was a moderate positive correlation between the two items measuring independent self-construal across all observations ($r = 0.39$, $p < .001$) and the two items measuring interdependent self-construal ($r = 0.47$, $p < .001$); thus, composite scores were created for each type of self-construal. Based on the low correlation between the mean scores on independent and interdependent self-construal across all observations ($r = -0.05$, $p = .002$), these variables were examined separately in the analyses.

Social Environment. The participant's social environment was measured through the occurrence of social interaction, partner of social interaction, quality of social interaction, and perceived closeness of relationship. To assess occurrence of social interaction, participants responded to the question, "Did you have a social interaction since the last beep?" (0 = *no,* 1 = *yes*). If participants indicated "yes," they were then prompted with "If you had more than one interaction since the last beep, please answer the following questions based on your most recent interaction" and subsequently reported on the partner of social interaction by responding to the question "Who was it with?" and choosing one of the following: family member, friend, romantic partner, roommate, stranger, coworker, boss/supervisor, professor, counselor/therapist, or other. In line with the focus of the present study, responses to this question were re-coded into a dichotomous interaction partner variable (0 = *secondary group partner,* 1 = *primary group partner)*. Family member, friend, and romantic partner were coded as primary group partner, and all other choices were coded as secondary group partner. Participants also reported on the quality of the interaction ("How pleasant was the interaction?*")* on a scale from 0 (*very hostile*) to 6 (*very pleasant*). Then, participants reported on their perceived closeness of the relationship using the single item Inclusion of Other in the Self Scale (Aron et al., 1992), "Using the image below in which you are represented as 'Self' and the person you interacted with is represented as 'Other', think about which number best indicates how close you are with that person?" on a scale from 1 (*least closest*) to 7 (*closest*). The image included in the scale shows 7 different pairs of circles, with the circles going from not overlapping at all, indicating least closest, to almost completely overlapping, indicating closest.

Analytic Plan

Preliminary Analyses. All analyses were conducted using SAS v. 9.4. There was a total of 28 possible prompts for each participant. To ensure compliance and improve reliability of the data, we excluded participants with less than 8 responses for the EMA self-construal items. This number was based on the participants' responses on the EMA self-construal items (Range: 2-28 responses, $M = 20.43$, $SD = 6.29$) and obtaining the number of observations that were two standard deviations below the mean (7.85). Based on the reliability criteria for data responses (< 8 responses), a total of 13 participants were excluded from the analyses. Additionally, given the large proportion of female

participants in our sample, we conducted a preliminary analysis to examine mean differences between genders.

Primary Analyses. For the first goal of the paper, we partitioned the variance of independent and interdependent self-construal (tested separately) using unconditional multilevel models. Three-level models were used to partition variance into the proportion due to differences between-person (person level) and two within-person levels: within-person across-day (day level) variance and within-person within-days (moment level). We then examined the variance components for each model and calculated the percent of total variance at each level.

For the second goal of the paper, we tested whether the social environment variables at between-person and within-person levels predicted endorsement of independent and interdependent self-construal using multilevel models. Multilevel modeling analyses with restricted maximum likelihood were performed using the PROC MIXED command. The restricted maximum likelihood method does not impute missing data but uses available data to calculate maximum likelihood estimates. This approach is recommended for EMA data as it is robust in addressing missing data, which may often be problematic in repeated measurements (Schwartz & Stone, 1998). Because the social environment variables measured different occasions (i.e., occurrence of social interaction was tested on all occasions, whereas partner of social interaction, quality of social interaction, and perceived closeness of relationship were only tested in the case that a person had an interaction), we conducted models for each social environment variable separately. All models controlled for study day (running count from 1 to 14), whether it was weekday (0, Monday to Friday) or weekend day (1, Saturday/Sunday), and time of day (in minutes elapsed since midnight). Each model controlled for between-person variables that may influence self-construal, including gender, native language, and nativity status.

Social environment variables were tested at two different levels: person-mean (between-person) and person-mean centered (within-person). First, we obtained an overall mean across all observations for each different social environment variable and subtracted this from all raw values (grand mean centered). Then, we computed the average of each person's values for each of the social environment factors (person-mean). Finally, we subtracted the person average from the momentary values for each person (person-mean centered). The Pseudo R^2 statistic was included as a measure of the effect size of the model, which was calculated as a correlation between the predicted value of the outcome based on the model parameters and observed outcome variables. Numbers can range for 0 to 1, and provide an estimate of the amount of variance that each model explains (Bolger & Laurenceau, 2013).

Results

As part of the preliminary analyses, we conducted a *t*-test examining mean level differences in self-construal by participant gender. There were no gender differences for both independent, $t(51.39) = 0.35$, $p = .72$, and interdependent, $t(57.49) = -0.61$, $p = .54$, self-construals. Descriptive statistics of all study variables are presented in Table 1. The

Table 1. Descriptive Statistics of EMA Measures of Study Variables.

	N	Min	Max	Mean	*SD*
Self-construal					
Independent	4058	0.00	6.00	3.93	1.36
Interdependent	4048	0.00	6.00	3.06	1.50
Social Environment Variables					
Occurrence of social interaction	4040	0.00	1.00	0.84	0.37
Partner of interaction*	3391	0.00	1.00	0.75	0.43
Quality*	3391	0.00	6.00	4.45	1.34
Perceived closeness*	3392	1.00	7.00	4.95	1.97

Note. *N* represents number of observations for 191 participants across 14 days. *Participants responded to these items only when they reported the occurrence of a social interaction.

number of observations were comparable for both independent and interdependent self-construal, with independent self-construal evincing a higher average than interdependent self-construal across all observations. Most of the participants reported having a social interaction since the last prompt (84% of observations), and a large portion of these interactions occurred within primary group relationships (75% of reported interactions). We discuss the main study findings below.

Goal 1: Testing Between-Person and Within-Person Variability in Self-Construal

Results of the partitioning of variance of both independent and interdependent self-construal are displayed in Figure 1. In support of our first hypothesis, there was variability in both independent and interdependent self-construals. For independent self-construal, 58% of variance was due to between-person variance (ICC = 0.58), 10% was due to variance within-person across days, and 32% was due to variance within-person within-days. Similarly, for interdependent self-construal, 52% of variance was due to between-person variance (ICC = 0.52), 9% was due to variance within-person across days, and 39% was due to variance within-person within-days. Additionally, examination of the mean and relatively large standard deviations of self-construal suggest that self-construal in the current sample has a wide range of variation and is widely spread from the mean. Due to the relatively low proportion of variance at the within-person across days level, and to simplify the resultant models, we only modeled between-person and within-person within-day variance changes.

Goal 2: Testing Associations Between Fluctuations in Self-Construal and Social/Environment Factors

All social environmental variables were examined separately using multilevel models that controlled for time (study day, weekend or weekday, and time of day). Each social environmental factor was tested at the between-person (person-mean, noted as BP in

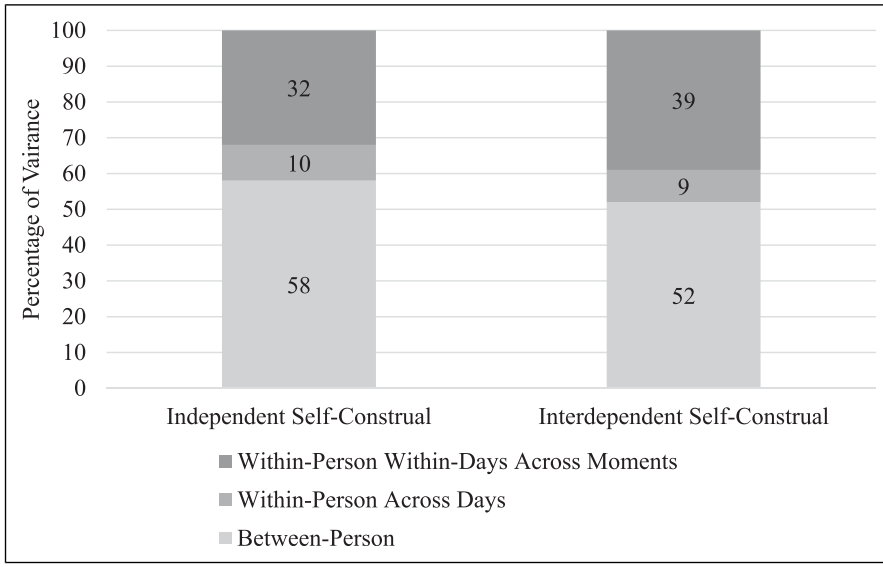

Figure 1. Partitioning of Variance for Independent and Interdependent Self-Construal. *Note*: This figure demonstrates the percentage of variance of independent and interdependent self-construal. Null multilevel models were run to examine whether the variance in each observation was due to moment-to-moment, day-to-day, or person-to-person influences. Contrary to much of prior research assuming differences only at the person-level, substantial variance in both independent and interdependent self-construal was observed at the within-person level, primarily due to changes from one moment to the next.

tables) and within-person (person mean-centered, noted as WP in tables) level. Subsequently, these variables were entered into the models to examine the effects of various dimensions of social environmental factors on independent (see Table 2) and interdependent (see Table 3) self-construal. The results demonstrated partial support for our hypothesis. We present these findings below separately for independent and interdependent self-construal, and further categorize these findings by the between- and within-person level of measurements.

Independent Self-Construal

Between-Person. Individuals who reported more social interaction on average also reported higher independent self-construal in general (p = .012). Similarly, individuals who reported higher quality of social interaction on average also reported higher independent self-construal (p = .008). There were no other significant associations between social environmental factors and independent self-construal at the between-person level.

Within-Person. There were no significant associations between social environment factors and independent self-construal at the within-person level.

Table 2. Effects of Social Environmental Factors on Independent Self-construal.

Predictors of Independent Self-Construal	Occurrence Model	Partner Model	Quality Model	Closeness Model
Fixed Effects				
Intercept	3.24(0.42)***	4.62(0.41)***	2.65(0.62)***	4.49(0.46)***
Study day	0.02(0.003)***	0.02(0.004)***	0.02(0.004)***	0.02(0.004)***
Weekend	0.00(0.03)	0.00(0.04)	−0.01(0.04)	0.00(0.04)
Time of day	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)
Gender	−0.34(0.22)	−0.21(0.21)	−0.11(0.22)	−0.20(0.22)
Language	−0.07(0.18)	−0.14(0.17)	−0.19(0.17)	−0.16(0.17)
Nativity	0.11(0.21)	0.02(0.21)	0.02(0.20)	0.07(0.21)
Occurrence – BP	1.07(0.43)*	—	—	—
Occurrence – WP	0.02(0.05)	—	—	—
Partner – BP	—	−0.65(0.38)	—	—
Partner – WP	—	−0.08(0.04)	—	—
Quality – BP	—	—	0.33(0.12)**	—
Quality – WP	—	—	−0.02(0.01)	—
Closeness – BP	—	—	—	−0.08(0.08)
Closeness – WP	—	—	—	−0.02(0.01)
Random Effects				
Intercept	0.94(0.11)***	0.90(0.11)***	0.88(0.11)***	0.92(0.11)***
Residual	0.75(0.02)***	0.74(0.02)***	0.74(0.02)***	0.74(0.02)***
Model statistics				
Pseudo R^2	0.04	0.03	0.05	0.02

Note. *$p < .05$, **$p < .01$, ***$p < .001$; Values are unstandardized beta coefficients (standard error). BP = between-person/person-mean, WP = within-person/person-mean centered.

Interdependent Self-construal

Between-Person. Individuals who reported higher quality of social interaction ($p = .011$) and higher levels of perceived closeness ($p = .038$) on average also reported higher interdependent self-construal. Occurrence of social interaction and partner of interaction were not significantly associated with interdependent self-construal at the between-person level.

Within-Person. All social environmental factors were consistently associated with interdependent self-construal at the within-person level. Specifically, in the moments where an individual reported having a social interaction compared to not having a social interaction, they reported higher interdependent self-construal ($p < .001$). Within these reported interactions, having a social interaction within primary group relationships compared to other relationships was also associated with higher interdependent self-construal ($p < .001$). Similarly, when an individual reports higher quality of social

Table 3. Effects of Social Environmental Factors on Interdependent Self-construal.

Predictors of Interdependent Self-Construal	Occurrence Model	Partner Model	Quality Model	Closeness Model
Fixed Effects				
Intercept	2.04(0.46)***	2.36(0.46)***	1.11(0.70)	1.98(0.51)***
Study day	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)
Weekend	0.07(0.04)	0.04(0.04)	0.07(0.04)	0.02(0.04)
Time of day	0.00(0.00)	0.00(0.00)	0.00(0.00)	0.00(0.00)
Gender	0.15(0.24)	0.19(0.25)	0.34(0.25)	0.13(0.24)
Language	0.16(0.19)	0.14(0.20)	0.12(0.19)	0.16(0.19)
Nativity	0.04(0.23)	0.10(0.24)	0.00(0.23)	0.08(0.23)
Occurrence – BP	0.67(0.47)	—	—	—
Occurrence – WP	0.42(0.06)***	—	—	—
Partner – BP	—	0.48(0.44)	—	—
Partner – WP	—	0.35(0.05)***	—	—
Quality – BP	—	—	0.35(0.14)**	—
Quality – WP	—	—	0.20(0.02)***	—
Closeness – BP	—	—	—	0.19(0.09)*
Closeness – WP	—	—	—	0.11(0.01)***
Random Effects				
Intercept	1.14(0.14)***	1.17(0.14)***	1.13(0.14)***	1.14(0.14)***
Residual	1.09(0.03)***	1.02(0.03)***	0.98(0.03)***	1.00(0.03)***
Model statistics				
Pseudo R^2	0.03	0.02	0.06	0.05

Note. *p < .05, **p < .01, ***p < .001; Values are unstandardized beta coefficients (standard error). BP = between-person/person-mean, WP = within-person/person-mean centered.

interaction ($p < .001$) and higher perceived closeness ($p < .001$) than they typically would, they also report higher interdependent self-construal.

Discussion

This is the first study to our knowledge to measure self-construal among Latinx emerging adults using an EMA approach. The present study examined variance in independent and interdependent self-construal on three different levels: person, day, and moment. As hypothesized, one's independent and interdependent self-construal are dynamic and fluctuate considerably within-person. Furthermore, facets of the social environment were consistently associated with interdependent self-construal at the momentary level, but not with independent self-construal. The associations between social environment and self-construal also differed at the between-person and within-person level. We discuss the findings in more detail below and close by highlighting implications of the work for research and practice.

Dynamics of Self-Construal in Everyday Life

In line with our first hypothesis, for both independent and interdependent self-construal, nearly half of the variance was at the within-person level. These findings suggest that self-construal varies considerably within the same individual, at both daily and momentary levels. This provides support for our hypothesis that self-construal is in part a fluctuating state, instead of a stable, non-changing trait within an individual. This extends prior work that has examined different facets of the cultural self as malleable (Ross et al., 2002) and situational (Hong et al., 2000). Additionally, the findings indicate that self-construal in the current sample of all Latinx emerging adults has a wide range of variation, providing support to the notion that heterogeneity exists within a cultural group (Deater-Deckard et al., 2018), and that it is important to consider individual differences when examining aspects of culture.

Interestingly, for independent and interdependent self-construal, the largest proportion of within-person variance was at the moment level (i.e., within-person within-day). One possible explanation for this finding is that the relatively low level of variance at the day level may reflect routines and schedules which are fairly consistent across days especially for our sample of undergraduates within the same institution. However, when viewed on a momentary level, individuals may shift environments (e.g., from school to home) and social partners (e.g., from friends to family) and these contextual shifts may contribute to the fluctuations of self-construal within a given day. This finding is aligned with theoretical perspectives that have highlighted the dual cultural adaptation framework among Latinx American youth (e.g., Gonzales et al., 2002), in which Latinx youth learn to adapt to both heritage and host culture through adaptive behaviors, which may include fluctuations in self-construal in different social contexts. The distinction between the daily and momentary levels provides a glimpse into how aspect of the cultural self, including self-construal may vary as a function of one's social environment.

Facets of Social Environment and Changes in Self-Construal

Between-Person Associations. Unexpectedly, at the between-person level, those who reported more social interactions and higher quality interactions generally had higher levels of independent self-construal. Although somewhat surprising, the links between higher occurrence of social interaction and independent self-construal replicate the findings of prior work that demonstrated Chinese individuals (representing an interdependent culture) have fewer interactions compared to American (representing an independent culture) individuals (Wheeler et al., 1989). Furthermore, there is evidence that higher levels of individualism are associated with ease of interacting with others, which may in part explain the association between higher occurrence and quality of social interactions with independent self-construal (Oyserman et al., 2002).

Individuals who had a generally more positive perception of their social environment (higher quality of interactions and perceived closeness) reported higher interdependent self-construal compared to individuals who had more negative perceptions of their social environment. This is in line with established evidence of interdependent self-construal as

a socially and relationally rooted value (Markus & Kitayama, 1991). This finding is also supported by prior work demonstrating the links between collectivistic-based values and an emphasis on social relationships, which may be imperative to Latinx culture (Schwartz et al., 2010). It is important to note that these models do not reveal directionality; thus, it is possible that the opposite pattern is true. For example, one possible explanation is that individuals who reported higher levels of independent self-construal on average are more sociable, and hence report higher occurrence and higher quality of social interactions on average. Similarly, individuals who reported higher interdependent self-construal may also have a better perception of their social environment. Importantly, the findings deviate from prior work by measuring self-construal explicitly instead of inferring cultural orientations based on group membership.

Taken together, findings suggest that greater independent self-construal was associated with more frequent social interactions, whereas interdependent self-construal was associated with better quality social interactions. It is possible that independent self-construal may be associated with another between-person factor that could explain this relationship, such as more independent people being more willing to seek help or talk to strangers. Future research could examine more nuanced aspects of cultural values that are emphasized in Latinx culture (e.g., familism, self-reliance; see Knight et al., 2010) that may help hone in on individual differences in association between cultural values and aspects of one's social context.

Within-Person Associations. Central to the study aims, at the within-person level, aspects of the social environment consistently predicted interdependent self-construal among Latinx emerging adults. Specifically, in the moments where an individual reported having a social interaction, interacting with close others, better perceived quality, and higher perceived closeness, they also reported higher levels of interdependent self-construal. However, there were no significant associations between one's social environment and changes in independent self-construal. Given the relational nature of interdependent self-construal, it is possible that simply the occurrence of a social interaction may prompt individuals to endorse higher interdependent self-construal. Similarly, in the moments when an individual had an interaction with a primary group partner, such as family members, they also reported higher interdependent self-construal. This finding may be attributed to the importance of family in the Latinx culture and is in line with prior research highlighting familism values as central to the Latinx culture (e.g., Rodriguez et al., 2007). The findings also emphasize the subjective experience and perception of the individual in relation to the social environment as important predictor of one's self-construal. Specifically, quality and perceived closeness consistently predicted higher interdependent self-construal at the momentary level. This pattern is consistent with previous research on interdependent self-construal within the context of relationships, where individuals' interdependent self-construal was associated with cognitions and perceptions of the relationship such as perceived closeness and similarity (Morry & Kito, 2009).

The facets of social environment measured in this study can be seen as possibly playing a "priming" role in activating higher levels of interdependent self-construal within Latinx

emerging adults. This is in line with, and extends, previous research (e.g., Hong et al., 2000) by adding on specific situational cues for moment-to-moment variation in aspects of the cultural self. Whereas previous research on cultural frame switching has typically focused on cultural identification (e.g., Schindler et al., 2016), the findings of our study evidenced a switching effect on self-construal. This extends the idea that culture is a situated cognition (Oyserman, 2011), which can be affected by cues in the social environment (Hong et al., 2000) and adds to the broader literature by utilizing an ecological-valid measure. Importantly, the associations between interdependent self-construal and several facets of the social environment were mainly present at the within-person level, suggesting that there are considerable fluctuations in how individuals perceive their social environment and aspects of their cultural self.

However, the findings point toward an unanswered question: what are the social determinants that may elicit higher levels of independent self-construal in Latinx emerging adults? At the within-person level, the associations between social environment and independent self-construal were largely non-significant. One possible explanation is that facets of the social environment measured in the current study are relational in nature, and hence may be more predictive of interdependent self-construal. More research is needed to better understand the social determinants that may be predictive of independent self-construal among Latinx emerging adults.

Taken together, the findings of this study add to the broader understanding of normative development among Latinx youth by providing a more nuanced understanding of how Latinx emerging adults view themselves in different social contexts. Indeed, self-construal is a vital aspect of one's larger sense of self (Giacomin & Jordan, 2020), and an important aspect of the cultural self. Prior work has highlighted the importance of social relationships and connections within Latinx culture (e.g., Mulvaney-Day et al., 2007). However, most of this work have focused on between-person associations. Our findings provide an additional approach to understanding social environment and self-construal in Latinx emerging adults in comparison to one's own average level of social interactions and perception of the environment.

Limitations and Future Directions

Although this study is innovative in measuring and conceptualizing self-construal in a dynamic fashion, there are several limitations that warrant mentioning. Participants were all undergraduates within the same institution. This may limit the generalizability of our findings to other geographic regions and more diverse samples. However, we still observed considerable variance in both independent and interdependent self-construals, suggesting a group-based approach to understand culture fails to recognize the heterogeneity within this cultural group. Additionally, the present study did not obtain information on certain social position variables, such as sexual orientation and disability status, which may intersect with development of the cultural self.

Although an appropriate starting point given the lack of research on within-person variation on self-construal, independent and interdependent self-construal are only one component of the cultural self. Future research should take a multidimensional approach

and include other aspects that may be unique to the Latinx population, including values such as familism. Relatedly, the self-construal items were adapted from established measures, but the psychometric properties of these items have not been tested within an EMA design. Hence, findings should be interpreted within the confines of these measurement limitations.

Whereas the current study operationalized the social environment as the presence of and quality of social interactions, future research could expand this focus by including other social environment variables at the broader community level (e.g., geographic location, neighborhood factors). These social factors may also predict how self-construal changes over different time scales. For example, week-to-week changes in self-construal could happen as one is on vacation and is exposed to a different cultural group, month-to-month changes could happen as college students move back home over a break and then go back to campus, and year-to-year changes could happen as a result of a breakup in a relationship or a change in employment.

Finally, despite lack of direct evidence of the causal link between social environment and self-construal, we speculate that the associations between the two are and dynamic and bidirectional. Though there are numerous strengths to the EMA approach, this approach does not come without challenges (e.g., sampling intensity). Future research could delve deeper into these dynamic processes by testing the potential recursive processes between social environment and different aspects of culture.

Conclusions and Implications

By investigating the fluctuations of self-construal using an EMA approach, the present study is the first to uncover ways in which one's social environment is associated with short-term fluctuations in how Latinx youth defines themselves in relation to others. We have extended previous cross-cultural research by showing that self-construal varies between individuals within the same cultural group, but more importantly, also varies within-person across different situations. The findings demonstrate that self-construal changes on a momentary level, and measuring self-construal using a dynamic approach is important for understanding the associations between the cultural self and the social environment. Measuring self-construal within-person on a momentary timescale allows us to identify and intervene during vulnerable moments, such as when Latinx youth report having a bad interaction (lower quality) and feels isolated (lower perceived closeness). Considering that both independent and interdependent self-construals may influence one's cognitive processes and socioemotional wellbeing, the findings of this study is an important first step towards a more strength-based, well-rounded understanding of positive development among Latinx youth. Moreover, a within-person design allows us to take into account every individual's own baseline, including variability that may be attributed to membership in different Latinx subgroup, and may account for individual differences such as extroversion and introversion. Indeed, within-person variation often provides important baseline and background information about people and defines what level of variability is normal for them (Fleeson, 2001). From an intervention standpoint, our findings are important for the design and implementation of just-in-time intervention

adaptation, an intervention design aiming to provide the right type/amount of support, at the right time, by adapting to an individual's changing internal and contextual state (Nahum-Shani et al., 2018).

It is important to note that the current findings do not negate current measurements and conceptualizations of self-construal, but rather, adds on to them by providing a micro-longitudinal, within-person approach. Certainly, researchers have highlighted the importance of estimating and comparing between different "pockets" of variability, shedding light on what it means to be a member of a cultural group, to be an individual within that group, and to change over time (Deater-Deckard et al., 2018). There are additional aspects of the present study that are noteworthy. The use of an EMA approach allowed us to study the processes that naturally occur in in the participants' everyday life. This type of intensive longitudinal design provides an important complement to research that has used retrospective self-reports. Using multiple methodology approaches is imperative because differences between cultural groups can vary as a function of the methods used to examine such differences (Kafetsios et al., 2018). Most importantly, the present study provides a more nuanced theoretical picture that complements current research on the associations between social environment and self-construal in Latinx emerging adults.

Authors' Note

Carmen Kho is now at the department of Human Development and Family Science, North Dakota State University. There are no grants associated with this research. This study was presented at the Society for Personality and Social Psychology Health Preconference in 2019.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Open Research Statement

As part of IARR's encouragement of open research practices, the author(s) have provided the following information: This research was not pre-registered. The data used in the research are not available. The data can be obtained by emailing: mzawadzki@ucmerced.edu. The materials used in the research are not available. The materials can be obtained by emailing: mzawadzki@ucmerced.edu

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