

# The Privilege of Immersion: Racial and Ethnic Experiences, Perceptions, and Beliefs in Digital Gaming

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## ABSTRACT

People of color comprise a large proportion of the US player base, yet are systematically and grossly underrepresented in digital games. We constructed a survey to assess if players perceive this underrepresentation, how they experience these representations, and sample their beliefs about diversity and gaming. Mixed-methods analyses show significant differences between players of color and White players on perception of racial norms in gaming, effects on behavior, emotions, player satisfaction, engagement, and beliefs stemming from a lack of diversity. Players from all races-ethnicities overwhelmingly expressed a desire for greater diversity. We discuss reasons why our methodology shows higher dissatisfaction than previous research and discuss our findings in the context of industry's challenge to meet audience demands for greater racial diversity in games.

## Author Keywords

Race; ethnicity; identification; representation; immersion; digital games; racialized experiences; diversity; norms

## ACM Classification Keywords

K.8.0 [Personal Computing]: General - Games.

## INTRODUCTION

Digital media is surpassing other forms of media (e.g., movies, music) in terms of popularity and consumer spending [41]. Digital games are not only enjoyed by a diverse range of players [42,153], but a greater proportion of people of color play games [3,7], identify as gamers [42], and own a gaming system [107] than their White non-Hispanic counterparts. Players of color are a faster-growing market, projected to overtake the economic buying power of White non-Hispanic Americans [47,101–103,105,108,119].

Although people of color play games, buy games, and identify as gamers in greater proportion than White players, *characters of color* are vastly underrepresented in commercial games; rates of main and secondary characters of color in games released by AAA studios are as low as 1% for

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CHI 2018, April 21–26, 2018, Montreal, QC, Canada

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ACM ISBN 978-1-4503-5620-6/18/04...\$15.00

<https://doi.org/10.1145/3173574.3173957>

Hispanic/Latinx and 0% for Native American main characters in some studies [11,42,48,53,96,153]. Although it is reasonable to assume that racial diversity may be better in games released by indie studios—similar to how streaming models have improved racial diversity over traditional television broadcasting—a recent content analysis of indie games shows an equally dismal (and declining) representation of racial diversity [117].

Even where racially-diverse character creation options are present, studies continue to find a persistent and emergent whiteness: White avatars remain the “default” option; non-White skin-tone choices are superimposed on White physical features (what Marriott terms “high-tech blackface” [84]). In the context of character creation, this can leave players of color who wish to self-represent settling for options that are “skin deep” [17,36,68,92,109]. Uncanny non-White characters features signal racial diversity as an afterthought and players of color notice their post-hoc “inclusion” [98,99,138,157].

Lack of in-game racial diversity compromises player experience for people of color [158]; pigeonholes them to specific genres in which they are represented (e.g. sport and military games have the highest proportion of both African American characters and players [78]); renders the cognitive, emotional, and social benefits of gaming less accessible [3,137,151,158]; ignores social and moral imperatives for equal representation; and underserves a market eager for games with which they can identify [66]. Using Identity-Based Motivation Theory, Critical Race Theory, and Social Identity Theory, we explored the experiences of players of color through mixed-methods analysis of an online survey about racial-ethnic experiences in digital games.

We demonstrate differences between players of color and White players on the perception of racial-ethnic norms in gaming and experiences of stereotypes as well as the effects of underrepresentation on behavior, emotions, satisfaction, feelings of immersion, affiliation, and beliefs. Further, we demonstrate how sensitive and race-/ethnicity-centric research methods can overcome the learned neutrality of people of color coping under White norms [24,81,136], which leads to the under-reporting of racialized experiences.

People of color do not have equal access to play accurate self-representations and show higher rates of perceived, experienced, and expected misrepresentation in digital games compared to their White peers. Our work describes

the imbalanced and differential access to gaming's benefits based on race-ethnicity, and contributes to an important discussion on ways to address what is best characterized at this point as the "privilege of immersion."

## RELATED LITERATURE

### What is the Current State of Racial Diversity in Games?

A 2001 study [53] of top-selling games across six consoles showed that more than half of all human characters were White (56%), one-fifth Black (22%), about one-tenth Asian/Pacific Islanders (9%), 2% Latino[x], and almost none were Native American or multiracial (0.2% each). Types of characters by race varied: 87% of heroes were White while 86% of African-American female characters were categorized as "props, bystanders, or participants in games, but never competitors. [...] Not one main character was Latina, and Native American characters were "essentially invisible" [53].

Similar studies on representation in digital games from 2009 [153], 2013 [36], 2014 [96], 2015 [48], and 2017 [117] show racial-ethnic diversity is worsening. White main characters remain over-represented (85.0%) in games; Black (9.7%); Biracial (3.7%); and Asian main characters (1.7%) much less present [153]. A 2014 study of the top 10 highest-ranked games from 2007-2012 [48] showed African-American and Asian characters each had 3% representation among main protagonists; Latinx a mere 1% and no representations of Native or Indigenous peoples [48]. White protagonists, on the other hand, comprised 67% of main characters and 75% of the Japanese-developed games [28]. Even where games center character creation, Dietrich's 2013 study found, "the vast majority of virtual worlds lack truly non-white (specifically black) characters; they simply cannot be made in those environments" [36]. Although indie games can deviate from many industry norms, improving racial diversity is not among them: Asians (8.2%), Blacks (6.1%), Hispanics (0%), and Native Americans (2.0%) are underrepresented as protagonists [117].

### What is the State of Diversity in the Games Industry?

Underrepresentation of non-White characters in games mirrors the underrepresentation of people of color employed by game companies [43]. In 2005, 83.3% of game developers were White, 7.5% were Asian, 2.5% were Hispanic, and 2% were Black [5]. These numbers have fluctuated over the last decade in USA and the UK but remain well below current population (and player) proportions [5,43,133]. Low rates of characters of color in tandem with low rates of developers of color suggests that a "creating what you know" principle is in effect [109,128,153] in the digital game industry.

However, research suggests that both developers and players are aligned in their desire for greater in-game diversity [5,29,109,128,133]. Ranked as the third most important factor in industry growth, 53% of developers felt diversity in storytelling should be a priority. Sexism among gamers (57%), sexism in games (52%), racism among gamers (36%), and racism in games (25%) were labelled primary

reasons for society's negative perceptions of gaming [43]. Reasons for wanted but unmet diversity range from historical explanations and systemic racism to White norms and "risk" aversion due to high production costs.

### Why Should the Games Industry Care about Diversity?

The psycho-social effects of unacknowledged racism and discrimination have a host of associated negative effects [49,63,89,111,126,130,135,145,154]. Self-discrepancy theory [60,61] has long associated experiences of discrimination—events where one's sense of self conflicts with frequent divergent and negative representations—with depression, anxiety, shame, low self-worth, and low resiliency [7-9,27,65,71,94,132]. Continual exposure to negative representations is tied to uncertainty [75], demotivation, and psychological disengagement [50,81,94,136]. Yet, research shows representation and digital gaming *can* reinforce self-schemas and benefit identity resilience [12,36,37,58,134], increase perspective-taking [13,37,151], and facilitate higher regard for individual differences [13,58,108]. Digital gaming can correct systemic discrimination or can intensify it depending on the awareness of those creating player experiences—thus placing a social and moral responsibility on developers where health factors are implicated.

Greater racial-ethnic diversity—even centralizing non-White characters and narratives—is not a risk in other media forms. Rather than alienating White American viewers, Nielsen ratings show that emphasizing diversity is socially and financially advantageous [127,131]. Non-White centered media increases yearly in top-ten rankings [104,131]. Ratings and sales improve when cast diversity mirrors actual diversity of its audience: which, for Americans, means 40% minority representation [104,127]. The same longitudinal studies show when representation rates decline, viewership does too [104]. Losses are experienced by industry through the alienation of its market [46,89,99,102,103]; players of color, pigeon-holed into specific genres, reinforce stereotypes [78,134] and in turn show lower commitment from some players [138]. Public opinion cites this lack of regard for diversity as central to gaming's poor public perception, with lack of diversity reinforcing negative social stereotypes about gaming and gamers [20,29,109,128,138,156]. Developers share player frustrations with misrepresentation and underrepresentation [5,43,128,133,156]. Beyond the far more important social factors linked to racial-ethnic diversity [147], low racial-ethnic diversity makes for a volatile industry model.

### Understanding the Challenges Behind Greater Diversity

#### Technical Challenges

Current efforts to racially and ethnically diversify are largely ineffective. Even when avatar customization is available, skin-tone variations are often insufficient, ignoring nuances like pigment undertone [17,36,68,77,93,109,128,157], White actors voicing non-White characters [33], and characters of color given White physical features or behave inauthentic to their culture [35,59,83,97,110,128]. These transgressions may not be as readily perceived by White

developers as they are by players of color, but those who live their racial-ethnic identity experience them as clearly as theatrical blackface or minstrelsy [76,77,98,99,138,157].

Transition from current norms to accurate representation of gaming's diverse audience seem implausible—an ask for systems that allow multiple culturally-aware versions of a game (e.g., pluralistic and racially-inclusive narrative progressions, character interactions, etc.). Expectations for higher resolutions, modelling, greater range and depth in avatar customization complicate the ability to implement a single character not to mention diverse character types and interactions. Meeting these demands costs money, time, knowledge; however, even small steps forward—those as seemingly minute as rendering African-American hair with accuracy [66]—are received positively [139,140,147].

Accuracy in representation is imperative. Termed “color blindness” [19], unawareness of racial-ethnic nuances or assumptions that characteristics are universally shared with white cultural norms is one aspect of what leads to the discrepancy between what players of color want and what industry produces [26,109]. Identity is comprised of multiple, nuanced facets (e.g. hair textures, facial structures, body types, voice timbre, movement styles, contextual reactivity, roles, values, behaviors, etc.) [10,14,45,46,75,88,141]. Emphasis on these facets is always contextual and cultural in origin; how and where faces communicate emotions, convey nonverbal “accents”, how bodies move all show cultural differences [8,39,40,62,75, 76,123,136]—differences that are perceptible to infants [70]. For example, emotional expressivity is communicated more around the eyes in Japan where the USA focuses around the mouth [161]. Representing a character from a culture in which emotional subduction is the norm not only places emphasis on eye dimensions in facial representation, it is necessary to authentically and accurately convey emotion [161]. Unawareness of these nuances and complexities leads to unintentional stereotypes (e.g., high-tech blackface) and miscommunications.

#### *Methodological Challenges:*

Current scientific literature on digital games lacks accurate data on how non-White players experience the current state of representation. For example, a 2015 survey by Pew [42] showed that only 9-10% of Americans felt minorities were portrayed poorly in digital games. The exact composition of these results was unclear (are these 10% simply representative of the 12.6% of African Americans in the USA?). However, there are two major reasons we think this number is underinflated: first, the grim status of non-White representation in digital games, as shown; second, because methods for gathering accurate data from people of color often lacks sensitivity in their cross-cultural methods [5,16,25,27,41,45,58,66,67,78,96,97,99,100,123].

Norms are difficult to accurately study; understanding them while eliciting experiential reports from perspectives within those very norms even more-so. Experiential divides (like those that allow people of color to notice a White actor

voicing a non-White character whereas White players are oblivious) rely on otherwise “invisible” biases, expectations, and assumptions—on normative and non-normative sides alike. Combining Social Identity Theory (SIT), Identity-Based Motivation theory (IBM), and Critical Race Theory (CRT), however, offers a highly reliable and validated framework for making visible experiential differences across racial-ethnic lines [28,30,46,89,112,114,150].

In brief, SIT and IBM frame identities as social constructs. These constructs are defined, understood, and internalized by one's cultural and historical contexts at the intersection of a person's perceptions, experiences, and expectations [4,75,113,115,142–144]. These constructs or “identity-schemas” develop in relation to their context across experiences and age, are achieved, modified, and fail multiple times across a life (e.g., [1,62,82,124]). People develop multiple identity-schemas to achieve survival and maximize success across contexts without losing self-coherency (e.g., they behave and think differently at work vs. at home, or with family vs. with strangers) [1,40,75,112,115,125].

Identity-schemas are cued by contexts [52,112,113,144]. The contexts established by current scientific methods (focus groups, survey design, playtesting) are an extension of many of the same norms prevalent throughout White-European and American cultures [2,100,148]; epistemologically, these scientific practices arise from similar ideologies and material conditions. Therefore, the context of scientific research can prime identity-schemas that align with survival and success in White-American contexts. Given that racial-ethnic identities often arise from contexts different than American norms, the schema primed during standardized study is not necessarily a racialized-ethnic one [31,89,112,114,124]. This priming effect is a confound if gathering data on an individual's racialized-ethnic experiences—as it is with gender biases [74].

Thus, why might so small a proportion of people report poor representation of minorities in digital games while current data suggests otherwise? Because normatively speaking the current state of gaming is no “poorer” a representation of minorities than one learns to expect from American media, American contexts. Underrepresentation is normal(ized). Psychological disengagement and learned neutrality are proven coping mechanisms for people of color coping under White norms [8,50,71,81,94,136]. Together, norms lending themselves to color blindness can leave a lack of diversity unseen by White Americans who do not experience discrimination while Americans of color find it unremarkable—“how things are” [24]. Using IBM, SIT, and CRT to inform our study's design and counteract biases, we gauged the experiences, perceptions, and beliefs of players from their ethnicity-centric identity-schemas.

## **GATHERING THE DATA**

### **Survey Design**

Where racial-/ethnicity-centered questions are concerned, best practices dictate direct questions [6]. To better inform

which questions to ask, how to ask them, and control for order effects, we used an iterative survey design with local players of color, critical race theory, validated identity and experience priming techniques from Identity-Based Motivation theory [1,112,114], Racial-Ethnic Identity measures [28,30,39,57,124,160], and standard guidelines for experiential-focusing techniques [16,51,120,122,123,162] (e.g., answers for some sections asked participants to recall memories of times and places when they felt particularly understood and could relate to those around them). We primed ethnicity-centered player experiences without leading responses and used multiple phrasings of questions to assess responses across several axes (beliefs/opinions, perceptions, experiences). We presented six ordered themes:

(i) *Personal Identity Measures*: We collected standard demographic information (e.g., gender, age, household income, etc.) and provided open-ended questions about ancestry, heritage, and self-described identity. The latter questions were constructed to prime reflection about participants' self-identified race and/or ethnicity schemas.

(ii) *Identity Centrality*: We asked questions about the value of participants' race, ethnicity, and ancestry. Phrasings were adapted from racial-identity measures and IBM questionnaires on race-ethnicity. We measured centrality of respondents' race-ethnicity to their identity and if they felt they had multiple identities. Participants were asked to describe the identity they use when playing digital games and if racial identity affects how they experience games.

(iii) *Gaming Preferences and Habits*: Participants were asked if they played digital games regularly. If not, questions were asked about why (multiple choice and open-ended). If yes, habits measures (e.g., platforms, genres of choice, play time per week) were collected along with the Digital Games Motivation Scale (DGMS) [56].

(iv) *Basic Needs and Norm Adaptability*: After priming reflection on their racial/ethnic background, participants answered questions about character creation choices (e.g., skin tone, features for identification, preferences, feeling when playing characters of other races). They were asked whether current options were sufficient to represent their racial-ethnic identity, about choices in character design, and what would be necessary to accurately represent them.

(v) *Emotional and Contextual Responsiveness*: We asked how players felt about the current state of diversity and its effects on their gaming habits. Experiences with stereotypes (e.g., frequency of occurrence, effects on game choices), of diversity in gaming and industry, and perceptions of the racial-ethnic diversity's current state was questioned.

(vi) *Expressions to Developers and Industry*: We asked multiple, optional open-ended questions to communicate additional experiences and perspectives. This was to collect general themes, provide a platform for open communication to researchers, and in case our instruments had overlooked relevant data. Participants were asked how they felt their

community and Americans would respond to greater in-game diversity, if they had personal experiences to relate, and if they wished to convey anything to game developers. A final open field was included for additional comments.

### Procedure

In our final survey, we asked 92 questions (including the 45 DGMS items) consisting of multiple-choice, choose-all-that-apply, 7-point Likert scales (“1=strongly disagree” to “7=strongly agree”), and 12 open-ended questions (e.g., “Can you describe the identity from which you experience most digital games?”). Design was iterative, beginning with 10 semi-structured interviews with players of color who share a positive and trusting rapport with the lead researcher [52,121] and then pilot-tested the survey with 5 demographically diverse individuals.

Participants were gathered through Amazon Mechanical-Turk (MTurk), a validated and reliable platform [72,86] that offers a range of Human Intelligence Tasks (HITs) (e.g., marketing questionnaires or research studies) to paid workers. In line with best practices, we measured time spent per questionnaire to ensure that participants were attentive despite the online setting [72,86].

Ethical approval was obtained from the University of Saskatchewan Behavioural Research Ethics Board and participants were asked to provide informed consent. To comply with ethical guidelines, the HIT was only made available to workers in the USA who were older than 18. Additionally, only workers with an approval rate above 90% were offered the HIT as a means of quality control. Participants received \$3.00USD compensation for completion of the 20-min survey. They were made aware their identities would remain confidential and that no deception was involved. Data was collected over one day and resulted in 286 total responses.

### Data Analyses

We conducted both quantitative and qualitative analyses on the data gathered from our survey, as well as between- and within-group analyses per best practices for studies on racial-ethnic groups, perceptions, and experiences [30,124].

#### Quantitative Data

Analysis was conducted in SPSS 24.0 (IBM, 2017). We used non-parametric tests on both the Likert scale and check-all-that-apply data, as described in the results section.

#### Qualitative Data

Thematic and Semantic analysis proceeded as standard [21,22] with minor modification. All deviations are noted below. Respondent answers were imported into NVivo 11 (QSR, 2017). A reflexivity journal was kept in all phases of analysis to track codes, themes, and monitor analyst biases from familiarity with the data.

*Approach 1 (inductive, grounded)*: To reduce analyst biases, prevent some forcing of data to fit predefined racial expectations and reduce interpreter biases, and to analyze possible differences between themes that emerged for each question, participant order was randomized, and each open-

ended question analyzed (Phases 1-5) independent of all other questions and participant data.

*Approach II (inductive):* A second round (Phases 1-5) was conducted several days after Approach I while bracketing previous interpretations of the data and themes [16,52]. Analysis was conducted per participant, taking into consideration the sum of their responses (including quantitative responses), for three primary reasons: to (post-hoc) evaluate the fit and reliability of emergent themes from approach I; to set responses back into their “living context” (as expressions interpreted from a person’s perceptions, beliefs, and experiences unfolding over the survey), thus allowing the analyst a more consistent and accurate frame through which to interpret responses [52]; to permit new themes to emerge when the data was analyzed within the context of the participant. Afterward, themes from approaches I and II were compared. Differences in coding prioritized Approach II.

*Approach III (deductive):* Occasionally, participants recorded experiences from earlier questions later in the survey (e.g. greater detail about their subjective identification was expressed in “anecdotes” or “community responses to greater diversity”). Analysis here (Phases 3-6) was conducted deductively, across the study, for previously identified themes. This took place predominantly for themes and sub-themes of “Self-Identification,” “Experiences of Discrimination,” and “Gaming Motivation.”

Operationalization, themes, subthemes, and coding structure are discussed in the results. After all phases of analyses, theme and code validity was tested through construct correlation with word clusters. High theme and word cluster correlation was achieved for related themes ( $>0.6$ ) with low correlation between unrelated themes ( $<0.2$ ). Code and themes were exported into binary matrices for each participant from NVivo for quantitative analysis in SPSS.

### **Racial Identities and Identification of Participants**

As our research involves differential analysis of responses based on race-ethnicity, grouping participants was necessary. Data from the check-all that apply Racial Category question: “*How are you formally identified in terms of race/ethnicity?*”, was combined with two open-field questions: “*Please describe who you are (your identity) in twenty words or less,*” at the beginning of the survey, and, “*If you think of yourself in terms of heritage, ancestry, family, or community, how would you describe your ethnicity? (e.g., Traditionally practicing Mohawk, 3rd Generation Muslim Pakistani, Scottish-Irish American, etc.)*” at the end of the demographic questionnaire. Qualitative self-identifications were coded for these questions and then compared to the standardized racial category responses.

If subjective racial-ethnic categorization conflicted with a participants’ racial category response, their subjective identification was given priority (e.g., they checked “White” but identified “I am light skinned but identify as black, African American”). 17 multi-racial respondents ( $n=23$ ) explicitly identified with a single racial category at exclusion or dis-

missal of the other, as did 6 of the “Prefer Not to Answer” ( $n=8$ ). Only 8 participants (2 White Hispanic, 1 Asian-Caucasian, 2 Asian Hispanic, 1 Asian African American) identified as “multi-racial” without definite preference for a racial-identifier, or remained unidentifiable (2). Due to very low sample size if these eight participants were categorized separately, and great variation between their reported experiences when grouped, we excluded this small subsample as well as the 1 Native American participant from the study.

After exclusionary criteria was applied, the sample ( $n=277$ ) was grouped into four conceptual racial-identifying groups: White ( $n=81$ , 29.2%), Asian ( $n=75$ , 27.1%), Black ( $n=75$ , 27.1%), and Hispanic ( $n=46$  16.6%). These racial groupings represent a heuristic “more similar than not” grouping determined by the purposes and results of this study; they do not reflect some essential or reductive experience of any race, ethnicity, ancestry, or heritage. We therefore encourage criticality when generalizing these results along racialized lines, keeping in mind that racial and ethnic attributes are only one multiplex component of a larger intersectional picture. Because identity is fluid, socially-dependent in its construction, and contextually-determined in its expression, it is not inconceivable to us that most participants subjectively self-identified in terms of White, Black, Hispanic, or Asian within this study—particularly given racial category norms in both the US and in digital games. The racial groupings here show higher variance in Asian and Hispanic samples than White and Black groups, consistent with census data and previous literature. Of our 277 participants (mean age=32,  $SD=9.4$ ), 98 were female, and 3 were non-binary or prefer not to disclose; 266 played digital games, and the vast majority (254) played at least weekly.

## **RESULTS**

### **Perceptions and Beliefs**

First, we establish whether players of color perceive the lack of racial diversity in digital game characters. We then report on negative stereotypes players have encountered and their racialized play experiences. We then question the perceived importance of racial diversity in games.

#### *Perceptions of Racial Diversity*

To understand the perception of racial diversity, we asked several questions; see Table 1 for means, standard deviations, and results of the statistical tests.

White players agreed that the digital games industry represents enough racial or ethnic diversity significantly more than Black or Hispanic players, who were below neutral in their level of agreement. However, there was no difference in agreement with the statement that the games industry is able to represent enough racial diversity, in which agreement was above neutral for each group.

Further, we asked participants to check all answers that applied for, *within digital games themselves, how do you feel diversity is treated?* There were only 8/277 (3%) of players who responded with *not at all*, 47/277 (17%) who responded with *not enough*, 93 (34%) who responded with

superficially, 139 (50%) who responded with *it's getting better*, 45 (16%) who responded with *already very diverse*, and 12 (4%) who responded with *there is too much diversity*. Chi-squared tests revealed no differences in any answer based on race (all  $p > 0.1$ ), except for *not at all* ( $\chi^2_3 = 9.8$ ,  $p = .020$ ), which 6 Black players, but only 1 White player, 1 Asian player, and no Hispanic players chose.

**Table 1. Means (SD) for agreement (1=strongly disagree, 7=strongly agree, 4=neutral). Significance is calculated with the Kruskal-Wallis Test for multiple independent samples.**

White	Asian	Black	Hispanic	Test	p
M (SD)	M (SD)	M (SD)	M (SD)	df = 3	
<i>I feel the digital game industry represents enough racial/ethnic diversity.</i>					
4.49 (1.629) <i>c,d</i>	4.24 (1.550)	3.64 (1.698) <i>a</i>	3.65 (1.728) <i>a</i>	13.68	<b>0.003</b>
<i>I feel the digital game industry is able to represent enough racial and/or ethnic diversity.</i>					
5.06 (1.408)	4.83 (1.465)	5.12 (1.442)	4.76 (1.552)	3.090	0.378
<i>Most human characters I encounter in digital games are white.</i>					
3.83 (1.701) <i>c,d</i>	4.19 (1.706)	4.72 (1.64) <i>a</i>	4.57 (1.573) <i>a</i>	11.78	<b>0.008</b>
<i>Most non-white characters are stereotypes.</i>					
5.01 (1.453) <i>c</i>	5.29 (1.228)	5.55 (1.482)	5.67 (1.383) <i>a</i>	12.30	<b>0.006</b>
<i>I often encounter characters in digital games that accurately represent my race and/or ethnicity.</i>					
5.17 (1.556) <i>b,c,d</i>	3.51 (1.554) <i>a</i>	3.77 (1.729) <i>a</i>	3.22 (1.459) <i>a</i>	52.90	<b>&lt;.001</b>
<i>My race and/or ethnicity means that I experience digital games differently than people from other races/ethnicities.</i>					
3.11 (1.739) <i>c</i>	3.65 (1.555)	4.01 (1.728) <i>a,d</i>	3.09 (1.836) <i>c</i>	14.20	<b>0.003</b>

*a: different from White, b: different from Asian, c: different from Black, d: different from Hispanic*

White players, Asian players, and Hispanic players disagreed that they *experience digital games differently than people from other races or ethnicities*, whereas Black players felt neutral; White and Hispanic players agreed significantly less than Black players.

In terms of characters of color, players of color agreed that *most human characters I encounter in digital games are white*, whereas White players were neutral in their agreement; White players agreed significantly less than Black or Hispanic players. However, White players did agree significantly more that *I often encounter characters in digital games that accurately represent my race or ethnicity* than Black, Asian, or Hispanic players, who were all below the neutral point on the scale. Furthermore, all groups agreed that *most non-White characters are stereotypes*, with Black players agreeing significantly more than White players. This agreement was significant for all groups as shown by one-sample Wilcoxon Signed Ranks tests (all  $p < .001$ ).

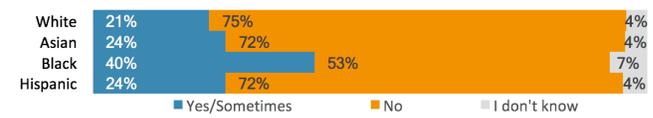
### Negative Stereotypes Encountered

We asked participants whether they *encountered racial stereotypes in digital games* with the options of *never, 10%, 30%, 50%, 70%, 90%, and almost always*. An Independent-Samples Kruskal Wallis test showed that participants responded differently depending on their racial group ( $KW_3 = 9.52$ ,  $p = .023$ ). Pairwise comparisons showed that Black players reported a higher frequency of encountering racial stereotypes than White players.

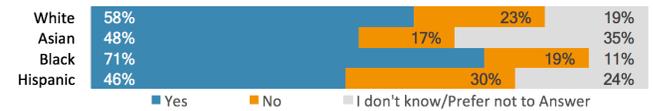
We further asked *do stereotypes affect what digital games you play?* (see Figure 1). Chi-squared tests for each answer showed significant racial differences in the answers for *no*

( $\chi^2_3 = 10.4$ ,  $p = .015$ ) and *sometimes* ( $\chi^2_3 = 8.6$ ,  $p = .035$ ), but not *I don't know* ( $\chi^2_3 = 1.5$ ,  $p = .691$ ) or *yes* ( $\chi^2_3 = 3.1$ ,  $p = .370$ ). As Figure 1 shows, Black players were less likely to answer *no* and more likely to answer *sometimes*.

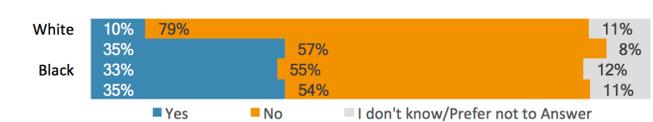
**Do stereotypes affect what digital games you play?**



**Given a variety of choices, I would prefer to play a character that accurately represents my racial and/or ethnic identity.**



**Many people of color in the United States have dual- or multiple-identities (one for being at work, in contexts dominated by white-identifying Americans, one at home, one in the community, etc.). Do you feel you have more than one identity in this way?**



**Figure 1. Proportions of answers for check-one questions.**

Themes related to discrimination and motivation to game were analyzed. We operationalized “experiences of discrimination” as descriptions of negative affect directly associated with feeling of being unjustly silenced, unwelcomed, minimized, stigmatized, mis- or un-represented due to unchangeable attributes of self (e.g., skin color, gender, race). To gather data on first-hand, systemic experiences and filter speculative discrimination (e.g., “I know a lot of characters are stereotypes”) we applied inclusionary criteria: (i) a minimum of two separate examples of personally-experienced discrimination; (ii) a personal experience of discrimination framed as a common systemic occurrence; or (iii) at least two perceived instances in which someone close to the participant experienced discrimination.

116 (41.9%) participants described experiences of discrimination, which were often associated with a source. 44 cases (37.9% of total discrimination themes) associated other players, almost exclusively in the form of racial epithets:

*When I play online multiplayer, since I'm obviously not white, I am called a nigger when I play Halo Master Chief Addition. This is the worst experience and it makes me feel not part of my favorite community.*

96 cases (82.8% of all discrimination coded) associated development and/or industry as its source. Subthemes here referred to explicit racism (stereotypical game characters, demeaning narratives, and misrepresentations) and institutional racism (tokenism, absence of representation, etc.):

*The only thing worse than invisibility is tokenism. I don't think anyone is asking for Dunkirk: The African Regiment, just normal black people with a range of personalities and backgrounds.*

*I've never played a game with a female latina lead. Not one. I can't even name one game that features a latina sidekick. I'm sure there are some, but it's such a fringe thing that I've never been able to experience a fantasy world through the actions of someone like me. Maybe this is me just being emotional but, it makes me sad. The few instances of latina characters I've heard of tend to fall under the sexy latina trope, it's like we're not seen as people just as hot play things or something.*

A subtheme of institutional racism expressed discrimination through technical aspects in gaming (environmental lighting or costume design not balanced for non-White characters, White voice actors playing characters of color, etc.):

*I choose a lighter skin tone because I am a darker Asian so it causes problems with the game. When I choose my skin color, all the faces makes it look like they're African American.*

*A lot of the hair, clothing, and other options seem to look better on avatars with lighter skin.*

30.9% of White (1/3 of which referred to gender or heteronormativity), 44.0% of Asian, 45.3% of Black, and 52.2% of Hispanic players detailed experiences of discrimination.

**Table 2. Means (SD) for agreement (1=strongly disagree, 7=strongly agree, 4=neutral). Significance is calculated with the Kruskal-Wallis Test for multiple independent samples.**

White	Asian	Black	Hispanic	Test	p
M (SD)	M (SD)	M (SD)	M (SD)	df=3	
<i>On the slider below, indicate how much diversity you would ideally like to see in gaming</i>					
4.86 (1.737)	5.12 (1.345)	5.31 (1.577)	5.39 (1.406)	3.916	0.271
<i>I feel that playing games where my race and/or ethnicity is represented accurately and positively improves my gaming experience.</i>					
3.98 (1.725)	4.45 (1.491)	4.67 (1.622)	4.20 (1.655)	6.705	0.082
<i>It is important to me that digital games include experiences built around my race/ethnicity/heritage/ancestry.</i>					
4.15 (1.81) <sup>c</sup>	4.92 (1.514)	5.17 (1.804) <sup>a</sup>	4.52 (1.871)	16.035	0.001

a: different from White, b: different from Asian, c: different from Black, d: different from Hispanic

### Importance of Racial Representation

All groups agreed that *it is important to me that digital gaming include experiences built around my race, ethnicity, heritage, or ancestry*; Black players agreed significantly more than White players. Players of color agreed that *playing games in which my race and/or ethnicity is accurately represented improves my gaming experience*; there were no significant differences in the strength of agreement based on group, but one-sample Wilcoxon Signed Ranks Tests showed that Black and Asian players significantly agreed ( $p_B=.002$ ,  $p_A=.020$ ,  $p$ ), whereas White and Hispanic players did not ( $p_W=.786$ ,  $p_H=.457$ ).

We further asked if players *prefer to play a character that accurately represents my racial or ethnic identity*. Chi-squared tests for answer show significant racial differences in the answers for *yes* ( $\chi^2_3=15.1$ ,  $p=.002$ ) and *I don't know* ( $\chi^2_3=10.1$ ,  $p=.018$ ), but not *no* ( $\chi^2_3=1.5$ ,  $p=.690$ ) and *prefer not to answer* ( $\chi^2_2=1.6$ ,  $p=.449$ ). As Figure 1 shows, a greater proportion of White and Black players would prefer to play a character that represented their race; a smaller proportion of White and Black players did not know.

To evaluate experience of norms against behavior and preference we asked, *How do you feel about playing a white character in a video game?* (check-all; see Table 3). Most players agreed playing White characters “has never been a problem” or “I am used to it.” Other responses qualify experience of this norm, indicating positive, negative, or neutral effect (see Table 3). White players exceeded players of color across positive qualifiers and were closer in proportion to the norm than non-White groups; the majority of

non-White players did not qualify their experience of the norm, positively or negatively.

**Table 3. Responses percentage visually divided by norm.**  
How do you feel about playing a white character in a video game?

		White	Hispanic	Black	Asian
<b>Apathy</b>	I don't know	6%	4%	4%	4%
	It bores me	6%	9%	9%	1%
<b>Negative</b>	I hate it	1%	2%	1%	0%
	I prefer not to	3%	9%	8%	4%
<b>Positive</b>	It fits better with most games	20%	9%	4%	9%
	I enjoy it	30%	11%	8%	9%
	I prefer to	27%	7%	0%	3%
<b>Normative</b>	It has never been a problem	64%	67%	60%	76%
	I am used to it	38%	44%	48%	67%

### Perceived Barriers to Increased Diversity

Players were asked about their identity-schemas and what they perceived were barriers to increasing diversity.

We asked players about having multiple identities (see Figure 1). Chi-squared tests show significant racial differences in answers for *yes* ( $\chi^2_3=11.5$ ,  $p=.006$ ) and *no* ( $\chi^2_3=17.8$ ,  $p<.001$ ), but not *I don't know* ( $\chi^2_3=1.8$ ,  $p=.624$ ), with fewer White players reporting *yes* and more reporting *no* (Fig. 1).

We asked the open-ended question, *Can you describe the identity from which you experience most digital games?* 40.4% of players ( $n=112$ ) employed “Multiple Identities” in daily life. These were often accompanied by contextual or affective descriptions:

*When I'm at work, I tend to identify as White (although I admit being multi-racial when asked) because it is generally more acceptable to behave as if I were white. At home, I identify as multi-racial and don't feel the need to change my appearance at home (in the workplace, I consistently have my hair pulled back or tamed, but at home I am comfortable wearing an afro).*

33.9% of players described their identity as “singular” ( $n=94$ ) (e.g. “I only have one identity,” “I play from the stand point of the only identity I consider myself to be in all situations.”). 78.7% of singular themes fell under a sub-theme of “I am always me no matter the situation” ( $n=74$ ).

All other responses were coded as “No answer/misanswer” ( $n=52$ ; 18.8%) (e.g. “N/A,” “I like elves and fantasy characters”) or “I don't think about it/I'm unsure” ( $n=19$ ; 6.9%) (e.g., “I guess I don't really think about identity at all in this way,” “I'm unsure, it's hard to answer”). More players of color employed “multiple” identity-schemas.

We asked players *How do you feel the community you identify with (in real life) would respond to greater diversity in digital games?* and *How do you feel the American population in general would respond to greater diversity in digital games?* All responses contained themes of reaction:

*Positive Reaction* (e.g., “Positively and happily and joyfully because it would make the experience more interesting and different. Tired of the brown haired white guy saving the day.”); *Negative Reaction* (e.g., “most likely be offended like something is being taken from them.”); *Apathetic/Neutral Reaction* (e.g., “I feel my community would be fine with it but not very much effected.”), coded from content thematically unified by indifference (e.g., “they would be open,” “won't mind or notice,” or “would not care”).

Content was given a qualifying sub-theme to convey proportion: *Entirely*, when themed stances were singular (e.g., “I think everyone would be happier for it, even if they aren't gamers.”); *Mostly*, which encompassed a “more-than-half” proportion (e.g., “I think they would approve for the most part, but I'm sure a select few that would complain.”); and *Some*, indicating a small proportion (e.g., “Some would see it as a positive step forward”).



Slightly higher frequencies of positive responses were found for players of color. “Fear of greater diversity at a cost,” a minor sub-theme associated almost exclusively with apathetic and negative responses, contained racially divided themes: while some White players feared diversity at the cost of game mechanics, some players of color feared diversity at a cost of further stereotyping or misrepresentation. Fears surrounding diversity were less frequent than positive themes, that “gaming would benefit from more diverse perspectives/characters/choices”.

## DISCUSSION

Players of all races-ethnicities want greater diversity and feel the gaming industry is capable of meeting this demand but currently is not. We discuss the challenges, opportunities, and implications of increasing racial diversity on player experiences, and provide developers with advice for its successful implementation.

### Why Experiences Must Be Distinguished from Norms

Our results show much higher, qualified rates of players feeling that minorities are represented poorly than Pew’s 2015 study [42]—even among exclusively White players (44-52% of players of color and 31% of White players cited experiences of discrimination). The majority of players—across racial groups—felt that most game characters were White and most non-White characters are stereotypes.

We attribute our higher rates to effective implementation of IBM, CRT, REL, racial-priming techniques, and close relationships with people/gamers of color. We demonstrate how a study’s context can cue responses from a racial-ethnic schema, allowing us to overcome possible learned detachment from players of color accustomed to misrepresentation, discrimination, and effects of multiple-identity schemas—as well as norms that can blind White players to their own racialized experiences. Accurate data-gathering requires racially-sensitive techniques to render norms visible, and then to elicit experiences beyond normalized responses.

Distinguishing experiences from perceptions and beliefs is fundamental to data-gathering when norms are involved [30,32,52,112,113,121], as is phrasing and prompting. For example, asking people about *their* community prompts direct experiential data; asking players to account for

“Americans” prompts beliefs. When respondents speculated about “America’s response”, they were less certain (fewer “entirely” and more “some” responses) than when relating their own community’s response. Here, the presence of a negative “vocal minority” is felt and perceived, but exaggerated: across *all* communities the expected response is largely *entirely* positive. In-group favorability, misattribution errors and over-estimation biases exist [23,25]; however, answers speaking to direct experiences are more likely accurate than opinions based on fear or internalized expectations—particularly when contending with norms, privilege, or learned detachment [6,16,120,122,123].

The pervasiveness of norms may render them invisible [18,19,36,49,64,90], but imperceptibility does not mean that these norms go unexperienced. Though some players (mostly White) felt that greater diversity was unnecessary and might detract from “more important things like game mechanics,” the majority of players did not feel similarly.

### Racial-Ethnic Experiences: Far from Black and White

Consistent with literature on norms and privilege, we show that race and ethnicity inform the perception of diversity—in degree, quality, and source. Unsurprisingly, players of color are more acutely aware of the racism and discrimination in digital games and perceive a greater need for diversity than their White cohort. Players of color *experience* racial-ethnic discrimination more than other players—especially in its less explicit forms of systemic and industry-based racism—and employ more coping strategies like multiple-identity schemas while gaming. Experience exceeding perception is not only why Black players differ from White players (and from some Asian and Hispanic players) across measures, it is also why we see negative experiences compounded across intersectional lines (Black women reported more experiences of discrimination than any other demographic).

Not all players of color perceive or experience discrimination similarly. Racial-ethnic differences are complex, nuanced, subjective, and further complicated by other identity measures (gender, class, darkness of skin, ability, family structure, etc.) [32,95]. And while we lack space to analyze these important intersectional effects in this paper, we show the strongest divides on racial-ethnic representation fall between White players and players of color.

### Why Would Players Want Diversity?

Where current norms in gaming undermine the desires and experiences of players of color, they also underserve White players. White-grouped participants equivocate on whether meaningful representation of race-ethnicity in games benefits their experiences, whereas they feel positive about playing White characters and feel current character options accurately represent their racial-ethnicities. Participants in the White group want novelty, role-play and fantasy, in higher proportion than players of color. Results like these suggest more than a privilege of immersion: they show that White players have a luxury of racial-/ethnic-representation—

enough to desire the novel experiences and differential representation that diversity brings.

Thus, while players across groups perceive more stereotyping and need for diversity in gaming than not, we cleave an important distinction: White players perceive lower rates of negative racial-ethnic representation and game more from a sense of core self because they do not experience its direct racial-ethnic effects. Their *perception relies on what they have been taught* (or not taught) about stereotypes. This is markedly different from how players of color *directly experience the cognitive and affective impacts* of stereotypes. It is more difficult for White participants to perceive poor representation because they feel accurately racially-represented, they must learn to identify discrimination as a norm, and they must consciously intend to perceive these norms [18,90]. Considering that game developers are predominantly White [5,133,150], the problems of misrepresentation derive from both less perception of discrimination and lower personal stakes in its correction.

Players discussed the novelty that diversity can bring to gaming, through telling untold stories and representations of characters and cultures currently absent in games:

*Get genuine honest stories and experiences from diverse people and you'll never run out of ideas. It's a literal goldmine of ideas when you look for interesting stories from different races and ethnicity and genders whatever. There's enough brown haired white guys with guns saving the day.*

Racial-ethnic diversity done accurately provides opportunities to tell the same stories from different perspectives, depict new interactions, and reinvigorate tired tropes. Novelty is wanted, and it sells. Diversity means variation in players' interactions: with each another, with tasks, and in game worlds. Inclusion of racial and ethnic diversity means more players with different playstyles, skills, and in-game motivations—which means a richer gaming experience.

### Representation Matters

People who game willingly represent themselves as fictional characters. However, players of color agreed that experiences built around their race-ethnicity are more important than not, and are suggested to benefit more from accurate representations of their race-ethnicity. Players of color generally agreed that accurate representation improves their experience and want to game as *themselves*, freed from everyday social restrictions and stigmas:

*My gaming identity comes closest to the identity I use when associating with close friends and family in that it is more open and unguarded compared to my professional work identity. Because digital gaming offers a degree of anonymity, I feel more free to express myself and not have to worry about following conventions or social norms.*

These results are in line with our understanding of the effects of representation in games. Identifying with a virtual representation shows benefits to engagement, immersion, and enjoyment [15,146,149], to performance [12,151], can increase players' sense of agency [12], increase gaming's cognitive benefits [54,55], and decrease negative affect [12,36,158,159]. Lower identification, and barriers to engagement means losses to many of gaming's benefits: lower emotional self-regulation [54], lower benefit from quality

socializing [34,38,151], increased aggression [159], and less mood repair [129]. As players of color were less likely to cite gaming from this “core” or “freed” identity-schema, the relationships between feeling accurately and positively represented helps support and explain some of the differences we see in literature between players, ethnicity, and received health benefits from gaming.

Gaming's potential benefits, potential interventions, and reinforcement of racism and discrimination are, here, tied to the same factor: representation. Recalling the psycho-social effects of unacknowledged racism cited earlier [49,63,89,111,126,130,135,145], representation can be a crucial factor in whether digital games reverse or reinforce unnecessarily oppressive systems. And while we do not suggest digital representations are the sole *cause* of the many issues discussed, representation is an aspect of gaming that affects entwined sociocultural, intrapersonal, and developmental systems. Lack of diversity in games means reinforcing negative biases, which negatively affects *all* players [13,37,58,65,134,151,159] and has broad social repercussions. All experiences happen in a context, and the context of current gaming norms as expressed by many players of color is systemic discrimination. Players of color experience the absence of meaningful racial-ethnic representation *as* negative representation. Thus, there is little room for neutrality in the digital creation of experiences.

The majority of participants “are used to” playing White characters. While White players feel positively about this, players of color feel neither positively nor negatively about this standard. Their most common response, “it doesn't bother me,” indicates the same learned coping mechanisms (acceptance and detachment) seen under systemic racism [24]. Players of color may not be deterred by stereotypical representations, or a lack of representation altogether, because one gets “used to it.” However, forcing players of color to cope is unnecessary in digital gaming; White players already feel accurately represented in terms of race-ethnicity. If accurate racial representation is widely seen as achievable for White players, it stands to reason that most players see the digital gaming industry as *capable* of representing other races/ethnicities.

### Are Players Feeling Immersed?

Research identifies multiple conditions for obtaining player experiences of immersion: from suspension of disbelief, connection to personal experiences, and affection for (virtual) characters [80,116] to intrapersonal dynamics like attitude, observational learning, emotional arousal, self-efficacy, subjective norms, and intrinsic motivation [13,67,80,116,146,152,155]. Although our survey questions concerned racial-ethnic representations and human characters, participants localized sources of discrimination across almost every facet of digital gaming: from virtual blackface, colorism, and mispronunciation of non-Anglo names to environmental lighting, performance handicaps, player interactions, and negative responses to non-White narratives, contexts, and digital actors. Players cited these expe-

periences as barriers to their self-described “sense of immersion,” sustained engagement, and expressed (as in literature) that gaming’s current norms have negative effects on many of the experiential constructs comprising immersion.

The more antecedents a construct has the more likely a player of color is to experience at least one barrier to that construct during an instance of play. Thus, while players of color vary in the sources, intensities, and qualities of experienced discrimination, players of color are more likely to experience at least one barrier to constructs that require many antecedent and sustained constructs, such as immersion. Future studies will need to quantify the effect that race and ethnicity have on presence, engagement, engrossment, and immersion; however, we see, in our results and the theoretical connections made here, experiential constructs like immersion are a privilege more available to White players than players of color.

### **Advice for Industry**

Despite poor racial-ethnic representation, digital gaming is overtaking other forms of entertainment media. Clearly, players are not opposed to identifying with characters of other races/ethnicities [131,138]. How players are willing to represent should not overcast how they want and deserve to represent. Audience demand for greater diversity is high, likely backlash is low, and diversity’s benefits immense. With racial-ethnic representation already achieved for White players, more valued by players of color, beneficial to all player experiences and gameplay, and profitable, game companies have much to gain and little to lose by diversifying. The privilege of immersion White players enjoy affords room to deviate from White norms when delivering what most players want: representation, novelty, equal access to gamer experiences and benefits, choice in identification: diversity.

Those who are represented should be the ones to decide what constitutes accurate representation. Players from our survey express that diversity must be a deliberate choice; it cannot be tacked-on if the intention is to avoid high tech backlash and other signals to non-White players that they are after-thoughts or do not belong [73,79,137,138]. Players of color who feared diversification did so out of past experiences, where that greater diversity led to more stereotyping, which is why players request greater industry engagement in and research on racial-ethnic identities (facial and physical features, attire, speech and movement patterns, norms, etc.). Hiring people of the same race-ethnicity represented in-game, establishing spaces for them to engage openly from their racialized-ethnic schemas, and allowing their experiences to inform development—from pre-production to playtesting and evaluation—is a well-advised, parsimonious first step:

*I think the issue stems from there being a lack of black game developers. I would like to see more scholarships and recruitment that bring in black developers, because who knows how to appeal to the black demographic better than someone who identifies as black? Please try to involve more minorities, even if that means you have to actively seek them. It is important that everyone is represented in video games; it is even more important that the*

*people who are represented are accurately represented. The means of doing so are to involve people of diverse ethnic groups.*

Without addressing these issues, digital actors too easily become sources of disengagement.

### **LIMITATIONS AND FUTURE WORK**

Our Hispanic-Latinx sample size was low and there were fewer women than men in our sample. Further selective sampling is needed to accurately reflect intersectional effects (e.g., interactions with gender, socioeconomic class, etc.) or to group participants by their more accurate and reflective subjective identification. Our regretful lack of response from Native American and Indigenous groups demonstrates the need for alternative sampling methods and community engagement to adequately represent the perspectives of these populations. Our sample was almost exclusively active players, risking bias in loss of data from would-be players turned off by gaming’s current norms. How individuals characterize themselves, what features are important to how they represent their racial identity, and what character features players across races-ethnicities feel are necessary constructs like engrossment, motivation, and immersion are key areas for future study. Several players mentioned the importance of narratives and stories centered on non-White characters, the specific requests of which are worthy of future study. Establishing spaces for non-White research on racialized experiences is necessary, as are in-depth interviews for greater specificity on player needs.

### **CONCLUSION**

White players appear experientially satisfied with their racial-ethnic representation in games, whereas players of color are employing common strategies to meet their needs under unnecessary discrimination. If players game to represent who they, engage and immerse themselves with greater freedom than life outside of gaming allows, it is those who face systematic discrimination that have the most to gain from changes in digital gaming’s norms. Our study demonstrates that White players understand some level of what players of color experience and feel they deserve equal opportunity to be immersed in games. Diversity has been shown to be wanted by players of all races-ethnicities and to benefit players of all races-ethnicities. If digital gaming intends to represent humans then it must do so carefully, as it risks harmful negative representations. Accuracy, collaboration, and information is thus paramount to addressing these issues. Much more than a low-risk high-reward industry choice, appropriate racial/ethnic representation and diversity is a social and moral demand—with repercussions on a host of biopsychosocial factors. If we have the resources, talent, technology, information, and creativity to create fantastical game worlds—to allow players to become superheroes, celebrities, imaginary creatures, and White—why can we not allow players of color to be themselves?

### **ACKNOWLEDGMENTS**

This study would not have been possible without the insight and consultation of Jessica Alegria and Vivian Phillips, to whom we are grateful. We would like to thank the Alegria,

Ibarra-Castillo, and Reid-Taypoytat families. We are indebted to the friends and colleagues who lent us their labor and trust in the early iterations of this study, and to this study's participants. Thanks to SWaGUR for funding.

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