


Swinging for the Fences Versus Advancing the Runner: Culture, Motivation, and Strategic Decision Making

Social Psychological and
Personality Science
1-11
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1948550621999273
journals.sagepub.com/home/spp


Roxie Chuang¹ , Keiko Ishii², Heejung S. Kim¹, and David K. Sherman¹

Abstract

This research investigated cross-cultural differences in strategic risky decisions in baseball—among professional baseball teams in North America and Japan (Study 1) and among baseball fans in the United States and Japan (Study 2—preregistered). Study 1 analyzed archival data from professional baseball leagues and demonstrated that outcomes reflecting high risk-high payoff strategies were more prevalent in North America, whereas outcomes reflecting low risk-low payoff strategies were more prevalent in Japan. Study 2 investigated fans' strategic decision making with a wider range of baseball strategies as well as an underlying reason for the difference: approach/avoidance motivational orientation. European American participants preferred high risk-high payoff strategies, Japanese participants preferred low risk-low payoff strategies, and this cultural variation was explained by cultural differences in motivational orientation. Baseball, which exemplifies a domain where strategic decision making has observable consequences, can demonstrate the power of culture through the actions and preferences of players and fans alike.

Keywords

decision making, culture, motivation, risk-taking

The experience of attending baseball games varies across countries. The cheering sounds differ, stadium food varies, and the entertainment between innings differs. At baseball games in the United States, fans eat Cracker Jacks and hot dogs, but in Japan, fans eat rice balls and from bento boxes. There is, however, one thing that seems to be the same—the baseball game itself. All over the world, pitchers, hitters, and fielders follow the same basic rules as they throw, bat, and catch the ball.

Originating in the United States in the 1840s, baseball has been described as the “unique paragon of American culture” (Stark, 2009). Baseball has also become an important presence in other nations such as Cuba, Dominican Republic, and Japan. Yet, however timeless and universal this old ball game may seem, local culture dictates how the game is played and perceived. Players from different cultures may opt for varying strategies and fans may respond to certain strategies or outcomes differently. For example, lay observations indicate that Americans prioritize home runs, a high risk-high payoff strategy, whereas Japanese adopt the “small ball” strategy—getting runners on base, trading an out to advance a runner by bunting—a low risk-low payoff strategy (Kuhn, 2015). In both countries, the goal of each team is the same, but the strategy they take may differ.

If these observations are valid, the question remains why Japanese and Americans have different approaches to baseball.

Some have suggested physical differences—Americans are bigger and taller and so play with more power (Kuhn, 2015). We suspect that physical differences do not fully explain disparities in baseball strategy and that the different approaches to baseball choices may reflect broader cultural differences.

In this article, we investigate whether Japanese and Americans indeed differ in their willingness to make risky decisions, as represented in specific baseball strategies, and if so, what the underlying psychological process is. More specifically, we compare offensive statistics of teams in the Major League Baseball (MLB) in North America and the Nippon Professional Baseball (NPB) in Japan in an archival study (Study 1) and assess the role of approach and avoidance motivations in explaining cultural differences in the preferred strategies of baseball fans in the United States and Japan (Study 2).

¹ University of California Santa Barbara, California

² Nagoya University, Japan

Corresponding Authors:

Roxie Chuang, University of California Santa Barbara, CA 93106, USA.
Email: roxiechuang@gmail.com

David K. Sherman, University of California, Santa Barbara, CA 93106, USA.
Email: sherman@ucsb.edu

Risk and Decision Making

In classical decision theory, risk is perceived as the variation in the distribution of possible outcomes (March & Shapira, 1987). Riskier choices are associated with larger variation, which means that the range for the amount of possible gain or loss is wider. People use risk to evaluate alternatives and when the expected payoff is constant, people generally prefer smaller over larger risks (Arrow, 1965; March & Shapira, 1987). However, when it comes to risk-taking in real life, the payoff is not constant. A storeowner who is an aspiring actor could remain a storeowner, or move to Hollywood, wait tables, audition, and hope for the big break. Remaining a storeowner has lower risk, but a lower potential payoff; acting has higher risk and a higher potential payoff.

People vary in how much risk they are willing to take. As people age, they are less likely to take risks; people high on extroversion and openness are more likely to take risks, whereas people high on neuroticism and agreeableness are less likely (Nicholson et al., 2005). When people experience heightened emotional states, they are more likely to engage in risky actions than when they are less emotional (see Cyders & Smith, 2008, for review). In addition to intrapersonal psychological factors, social and cultural factors also influence risk-taking.

Culture, Motivation, and Risk

Culture influences individual motivation and impacts people's goals, decisions, and emotions (e.g., Kim & Lawrie, 2019; Kitayama et al., 2000; Markus & Kitayama, 1991; Weber & Hsee, 2000). Empirical studies have shown that East Asians and European Americans differ in their orientation toward approach and avoidance motivation. Approach motivation is when behavior is directed by the goal to achieve a desirable outcome, whereas avoidance motivation is when behavior is directed by the goal to avoid an undesirable outcome (Elliot, 1999). Those from Asian cultures tend to be more avoidance and prevention oriented, and those from North American cultures tend to be more approach and promotion oriented (Aaker & Lee, 2001; Elliot et al., 2001; Hamamura et al., 2009; Lee et al., 2000).

Approach/avoidance motivations influence a range of psychological processes. The behavioral activation system (BAS) is theorized to sensitize people to rewards and to motivate them toward approaching actions that would result in positive affect, whereas the behavioral inhibition system (BIS) is theorized to inhibit or avoid behavior that may result in negative outcomes (Gray, 1990). Approach/avoidance motivations have been operationalized as an individual difference; people who score higher on the BIS scales respond with greater negative emotion when anticipating negative outcomes, whereas people who score higher on the BAS scales respond with greater positive emotion when anticipating a reward (Carver & White, 1994).

Approach/avoidance motivation also influences the way people from different cultural backgrounds view and recall

events. Among participants who recalled events from a list, North Americans were better able to recall approach events relative to avoidance events, whereas Japanese showed better recall for avoidance than approach events (Hamamura et al., 2009). Asians tend to be more motivated by failure and loss-framed messages, whereas Westerners tend to be more motivated by success and gain-framed messages (Heine et al., 2001; Uskul et al., 2009). Importantly, this difference may affect people's strategies to achieve their goals. White British participants had stronger intentions to engage in healthy behaviors after reading messages that emphasized gains, whereas East Asian participants had stronger such intentions after reading messages that emphasized losses (Uskul et al., 2009). Moreover, using sports as a context, a tennis game framed as an opportunity to avoid a loss was recalled better than one framed as an opportunity to achieve a win among Hong Kong participants, with the reverse pattern observed among European Americans (Aaker & Lee, 2001).

Therefore, we predicted that low risk-low payoff strategies that minimize the risk of failure would be more utilized in Japan and that high risk-high payoff strategies that maximize the potential of reward would be more utilized in the United States. We predicted that these cultural differences in strategies may be rooted in more general cultural differences in approach/avoidance orientations.

Overview of the Present Research

We examined cultural differences in strategic decision making with two studies, assessing both the performance of professional baseball players and the perspectives of fans. To examine outcomes reflecting strategy use in realistic high stake situations, Study 1 analyzed archival data from MLB and the NPB to examine whether there are cultural differences in frequencies of home runs, which have potential for great gain but a lower chance of success, strikeouts, a negative outcome associated with attempting to hit home runs, and sacrifice bunts,¹ which have potential for small gain but a higher chance of success. Study 2 investigated fans' preferences with a wider range of strategies and examined Japanese and American baseball fans' strategic decision making under various baseball scenarios.

Study 1

The purpose of Study 1 was to examine differences in baseball outcomes reflecting approach and avoidance motivations between North America and Japan based on the use of high risk-high payoff strategies (assessed by home runs and strikeouts) and low risk-low payoff strategies (assessed by sacrifice bunts) of professional baseball teams. We expected that the number of home runs and strikeouts per game would be larger in North America, a more approach-oriented culture, than in Japan, a more avoidance-oriented culture. In contrast, the number of sacrifice bunts per game was expected to be larger in Japan than in North America.

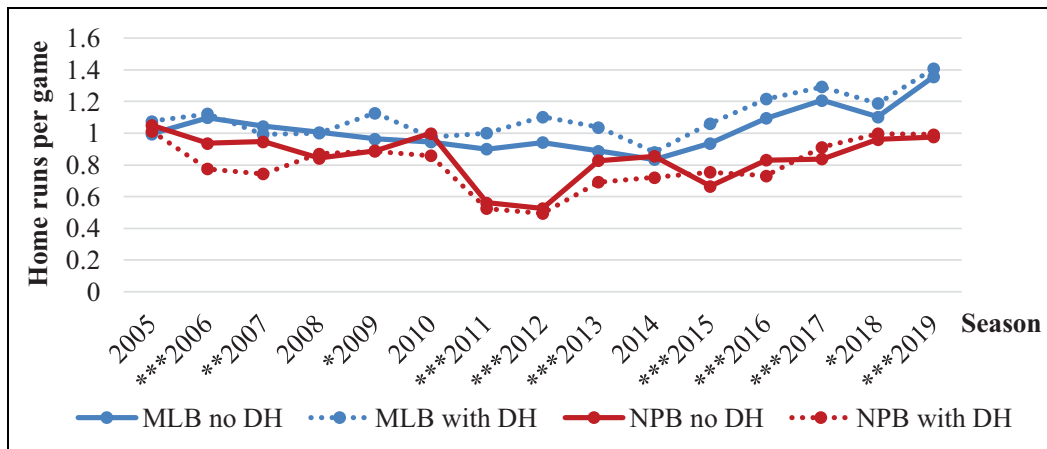


Figure 1. Number of home runs per game during the 2005–2019 seasons (** $p < .001$, * $p < .01$, $p < .05$ indicate significance of cultural difference for that season).

Method

We analyzed the data of home runs, strikeouts, and sacrifice bunts for the past 15 baseball seasons (2005–2019) of MLB teams (29 in total, Houston Astros was excluded from the analyses as it changed league in 2013) and all NPB teams (12 in total). The data for MLB teams and NPB teams were obtained from credible webpages (MLB: <https://www.baseball-reference.com/> (Baseball Reference, 2019) and NPB: <http://npb.jp/>). Data from a total of 70,462 MLB games and 25,778 NPB games were analyzed. The time range started in 2005, the earliest season available on the NPB webpage.

Results

Home Runs

To test the difference in home runs between U.S. and Japanese baseball teams, a 2 (culture: North America vs. Japan) \times 2 (league: with designated hitter [DH] rule vs. no DH rule)² \times 15 (seasons) mixed-model analysis of variance (ANOVA) was performed on the mean number of home runs per game. As expected, the main effect of culture was significant, $F(1, 37) = 36.84$, $p < .001$, $\eta_p^2 = .50$. The mean number of home runs was significantly higher in the North America ($M = 1.06$, $SD = 0.23$) than in Japan ($M = .82$, $SD = 0.24$), 95% $CI_{\text{difference}} [.16, .32]$. Figure 1 shows the consistency of the country effect over time. On average, an MLB fan would see about one additional home run every five games than an NPB fan. (See Supplemental Online Material [SOM] Table S1 for descriptive statistics and SOM Table S2 for full ANOVA results.)

Strikeouts

Home runs are successful outcomes of a relatively high-risk strategy. However, high-risk strategies are more likely to result in failure as well. To examine the flip side of a high-risk strategy, we examined strikeouts. Because strikeouts can result from failed attempts of home run, they are strongly correlated with home runs in MLB (Jordan, 2018). A 2 (culture: North

America vs. Japan) \times 2 (league: with DH rule vs. no DH rule) \times 15 (seasons) mixed-model ANOVA was performed on the mean number of strikeouts per game. The main effect of culture was significant, $F(1, 37) = 37.26$, $p < .001$, $\eta_p^2 = .50$, as strikeouts per game was larger in North America ($M = 7.52$, $SD = 1.03$) than in Japan ($M = 6.91$, $SD = 0.60$), 95% $CI_{\text{difference}} [.41, .81]$. Figure 2 shows the country effect over time. (See SOM Table S3 for descriptive statistics and SOM Table S4 for full ANOVA results.)

Sacrifice Bunts

A 2 (culture: North America vs. Japan) \times 2 (league: with DH rule vs. no DH rule) \times 15 (seasons) mixed model ANOVA was performed on the mean number of sacrifice bunts per game. There was a main effect of culture, $F(1, 37) = 1,112.81$, $p < .001$, $\eta_p^2 = .97$. The mean number of sacrifice bunts was significantly higher in Japan ($M = .83$, $SD = 0.19$) than in North America ($M = .28$, $SD = 0.13$; see Figure 3), 95% $CI_{\text{difference}} [.52, .58]$. A fan watching two Japanese baseball games, on average, would observe one to two sacrifice bunts, whereas in North America, a fan would see about one sacrifice bunt every four games. (See SOM Table S5 for descriptive statistics and SOM Table S6 for full ANOVA results.)

As reported in Tables S2, S4, and S6, there were higher order interactions involving culture, season, and league. The interactions indicate that the cultural differences are stronger in some years than others and in some leagues than others reflecting the overall variability from year to year. This variability is why it is important to examine multiple observations per sport and over time, which is what is reflected in the main effects of culture. It is beyond the scope of our article to discuss variability in season or variability in league interact with our focal variable of culture. What is clear though is that the hypothesized cultural differences are robust to the various unhypothesized interactions among culture, season, and league.³

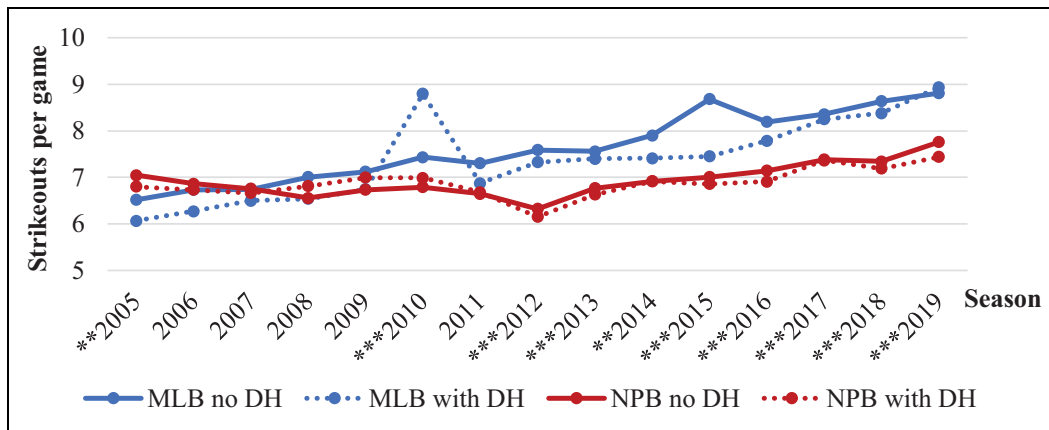


Figure 2. Number of strikeouts per game during the 2005–2019 seasons (***) $p < .001$, ** $p < .01$, * $p < .05$ indicate significance of cultural difference for that season).

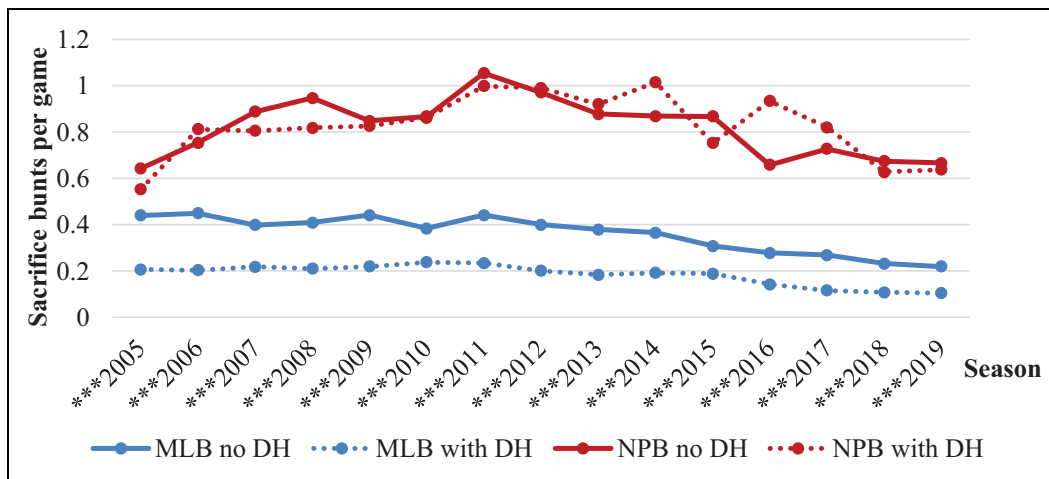


Figure 3. Number of sacrifice bunts per game during the 2005–2019 seasons (***) $p < .001$, ** $p < .01$, * $p < .05$ indicate significance of cultural difference for that season).

In summary, Study 1 supported our hypotheses. MLB teams exhibited more high risk-high payoff strategies (home runs and strikeouts) than the NPB teams, and the NPB teams exhibited more low risk-low payoff strategies (sacrifice bunts) than the MLB teams. Beyond the unhypothesized interactions among culture, season, and league, the hypothesized main effects of culture were robust. Building on this archival study, we next examined if baseball fans from these cultures would also prefer baseball strategies that match their motivational orientations.

Study 2

The purpose of Study 2 is twofold. First, it directly examined the mediating role of approach/avoidance motivational orientation. Second, the MLB and NPB consist of players and coaches from many cultures (about 35% of MLB players in 2017 were Asian or Latino (Lapchick et al., 2018), and 10% of NPB players in 2020 were not Japanese (NPB, 2020)). Yet, teams that

consist of individuals from different cultures utilize strategies consistent with local cultural expectations. We infer that at least one of the reasons for this is players' responsiveness to what is expected and appreciated by local fans. Therefore, in Study 2, we recruited European American baseball fans and Japanese baseball fans to represent two groups that differ on the cultural dimension of approach/avoidance orientation (Hamamura et al., 2009). Study 2 presented fans with a series of binary strategic choices (high risk-high payoff or low risk-low payoff). Examining these fans enabled a clearer test of whether a preference for high risk-high payoff strategies vs. low risk-low payoff strategies was a culturally shared normative experience.

We hypothesized that there would be a cultural difference such that European American fans would choose a higher proportion of high risk-high payoff vs. low risk-low payoff strategic decisions relative to Japanese fans. We further hypothesized that the cultural difference in strategic decision making would be mediated by cultural differences in motivational orientation.

Building on the research demonstrating cultural differences between Japanese and Americans in the impact of approach/avoidance motivation (Hamamura et al., 2009), in Study 2, we assessed approach/avoidance motivational orientation using the BIS/BAS scales (Carver & White, 1994). Approach motivation is theorized to relate to the energization of behavior toward positive stimuli and avoidance orientation, correspondingly, as the energization of behavior away from negative stimuli (Elliot, 2006), and the scales were validated with experiments that correspond to specific situations designed to evoke reward or punishment (Carver & White, 1994). The effect of BIS/BAS is theorized to be heightened by conflict or uncertainty, the likes of which are highly characteristic of a competitive event such as a baseball game; under uncertainty, BAS activates behavior toward incentive, whereas BIS detects conflict and resolves conflict by facilitating defensive behavior (Berkman et al., 2009; McNaughton & Gray, 2000). Thus, we theorized that individual difference assessments of the BIS/BAS would underlie cultural differences in the strategic choices of baseball fans.

Method

Sample

Our target sample was European American baseball fans and Japanese fans.⁴ We prescreened for knowledgeable baseball fans based on a simple baseball knowledge test.

Three hundred and fifty-four European American participants were recruited through Mechanical Turk (the study was open only to those who preindicated to be European (Caucasian) Americans on Mechanical Turk). One hundred and twelve participants were excluded for not having enough baseball knowledge (five people who failed the attention check also failed the baseball knowledge test). The attention check was “this is an attention check, please select ‘very true for me.’” Participants also indicated their race in our study; three participants were excluded for not self-identifying as European American. Two hundred thirty-nine participants were thus analyzed (36% female, 64% male; age $M = 37.41$, $SD = 11.76$).

Four hundred sixty-two Japanese participants were recruited through Lancers, an online crowdsourcing marketplace in Japan. One hundred and eight participants were excluded for not having enough baseball knowledge or failing the attention check (102 failed the baseball knowledge test, 13 failed the attention check, seven failed both). Five participants were excluded for not indicating Asian as their ethnicity, leaving 349 respondents for analysis (36% female, 64% male; age $M = 41.45$, $SD = 9.61$).⁵

Procedure. After consenting, participants completed a questionnaire measuring their motivational orientations and were then presented with the attention check and questions about baseball rules to determine eligibility. Eligible participants then answered questions regarding baseball scenarios, reported demographics, and were debriefed.

Measures and Materials

An online survey titled “short baseball study” presented items in the following order. The survey was translated into Japanese for Japanese participants.

Approach and avoidance motivation. A 20-item Behavioral Inhibition and Behavioral Activation Scale (Carver & White, 1994) was used to assess participants’ approach (BAS) and avoidance (BIS) motivational orientations. Items were assessed on a 4-point scale, from 1 *very false for me* to 4 *very true for me*. Thirteen items measured approach motivation, for example, “I go out of my way to get things I want” (Japan: $\alpha = .83$; United States: $\alpha = .86$). Seven items measured avoidance motivation, for example, “I worry about making mistakes” (Japan: $\alpha = .85$; United States: $\alpha = .86$). A multigroup confirmatory factor analysis examined measurement invariance regarding the BIS/BAS scales across the two groups (see SOM). For both BIS and BAS, evidence of configural and metric invariance was found, demonstrating measurement equivalence.

Baseball knowledge qualification check. Three items assessed participants’ baseball knowledge: (1) “How many innings are there in an MLB (NPB) game?” (2) “How many balls are required to walk a batter?” and (3) “How many outfielders per team are there in a typical baseball game?”

Strategic decision index. Participants then read eight baseball scenarios in randomized order and were given two strategic choices for each scenario. One option was higher risk-higher payoff and the other was lower risk-lower payoff, and these scenarios were constructed based on likely outcomes of strategies and confirmed with a pretest in the United States and Japan (see Table 1 for all scenarios and SOM for pretest details). We created a composite, the Strategic Decision Index (SDI), by summing the choices of eight scenarios to indicate participants’ tendencies to make more high risk-high payoff or low risk-low payoff decisions. The SDI ranged from 0 to 8, with higher numbers indicating a participant chose more high risk-high payoff strategies and lower numbers indicating a preference for more low risk-low payoff strategies.

Results and Discussions

Cultural Differences in Strategic Decision making

To examine whether culture influenced strategic decision making, we conducted a regression analysis, with culture (effect coded: Japan = -1 vs. United States = 1) as the predictor and SDI as the outcome variable. There was a significant cultural difference between Japanese ($M = 3.65$, $SD = 1.57$) and European Americans ($M = 3.95$, $SD = 1.52$) in the number of high risk-high payoff vs. low risk-low payoff strategic decisions, $\beta = .10$, $b = .15$, $SE = .07$, $p = .020$, 95% CI = [.02, .28], Cohen’s $d = .19$. European Americans made more high risk-high payoff decisions than Japanese did, and Japanese

Table 1. Strategic Decision Index.

Baseball Scenario	High Risk-High Payoff	Low Risk-Low Payoff
A. It's the bottom of the eighth inning, and your team is losing by one. One of your teammates is on third base, it's 1 out and you are at bat. The pitch count is 2-1. Would you try to swing for a home run so your team could be in the lead or try to bunt so your team can score a run and tie the game?	I would try to swing for a home run.	I would try to bunt.
B. Imagine you are the coach and it's the bottom of the eighth inning. Your runner on first base has average performance in stealing. Your team is down by 1 run, and there are 2 outs. If the runner attempts to steal a base but fails, the inning will end; if the steal succeeds, the runner will be in scoring position, and your team will need just one hit to score. Would you have the runner attempt to steal or not?	Yes, I will have the runner attempt to steal.	No, I will not have the runner attempt to steal.
C. You are at bat, your teammate is on first base with 1 out. The pitch count is 3-0. Your coach just gave you a green light. Would you take the pitch or try to swing?	I would try to swing.	I would take the pitch.
D. Imagine you are the centerfielder. It's the bottom of the eighth inning with 1 out. Your team is winning by 1 run. Your opponent has runners on second and third base. The batter hits a fly ball and it is about to land between you and the infield. Would you wait for the ball to drop for a hit (meaning a run will score) or try to dive for the ball to make an out (with the possibility that you will miss it and the opponent will score 2 runs)?	Try to dive.	Wait for ball to drop.
E. Imagine you are the third-baseman. It is the bottom of the eighth inning with 2 outs and 1 runner on second base. Your opponent hits a ground ball and it rolls along the third base line. Would you run to the ball and throw it to first base attempting to get the batter out (with the possibility that you might not throw the ball in time, or wild throw, which could allow your opponent to score) or would you wait for the ball to roll outside the line so it counts as a foul ball (with the possibility that it stays within the line, which would be a hit but your opponent would not advance from second to third base)?	I would run to the ball and throw it to first base attempting to get the batter out.	I would wait for the ball to roll outside the line so it counts as a foul ball.
F. Imagine you are the coach. It's the top of the seventh inning with 1 out, and there is 1 runner on second base. The next batter has two hits in the game and is a .320 batting average. Would you ask your pitcher to intentionally walk the batter (intentional base on balls to create an opportunity for double-play) or would you let the pitcher face the batter?	Ask pitcher to face the batter.	Ask pitcher to intentionally walk.
G. Imagine you are the third base coach. It's the bottom of the eighth inning, and your team is losing by 1. Your runner is on third base with 1 out and your batter hits a fly ball to right field. The outfielder who has a strong arm makes the catch—would you tell your runner to tag up and try to run home or tell the runner stay on third base?	I would tell the runner to tag up and try to run home.	I would tell the runner to stay on third base.
H. Imagine you are the catcher. Your opponent has a runner on first and a runner on third base. The runner on first base is trying to steal. Would you throw to second base to try and tag the runner out (at the risk of the runner on third base stealing home) or would you not throw to second base (no out and no risk of runner on third base stealing home)?	I would throw to second base to try and tag the runner out.	I would not throw to second base.

made more low risk-low payoff strategic decisions than did European Americans. Examining each scenario using χ^2 analysis revealed that four of the eight were significant or marginal in the predicted direction, whereas two of the eight were significant in the counter-predicted direction. (See Table 2 for the frequency breakdown).

Cultural Differences in Motivational Orientation

We then investigated whether there were cultural differences in approach and avoidance motivation. Japanese ($M = 3.08$, $SD = 0.53$) scored higher on avoidance motivation than European Americans did ($M = 2.81$, $SD = 0.67$), $\beta = -.22$,

Table 2. Frequency Breakdown of Each Strategic Decision Index Scenario.

Scenario	Japan/United States	Low Risk-Low Payoff (%)	High Risk-High Payoff (%)	² p value (one tailed)
A	Japan	84.2	15.8	.001
	United States	72.8	27.2	
B	Japan	37.2	62.8	.016
	United States	46.4	53.6	
C	Japan	78.2	21.8	<.001
	United States	55.6	44.4	
D	Japan	35.8	64.2	.059
	United States	29.3	70.7	
E	Japan	43.0	57.0	.365
	United States	44.8	55.2	
F	Japan	51.6	48.4	.036
	United States	59.4	40.6	
G	Japan	41.5	58.5	.482
	United States	41.0	59.0	
H	Japan	63.6	36.4	.032
	United States	55.6	44.4	

Note. Using one-tailed χ^2 analysis, we found that four scenarios were in the predicted direction (A, C, and H were significant, D was marginal). Two scenarios were significant and in the opposite direction (B and F). Two scenarios showed no difference (E and G).

$b = -.13$, $SE = .03$, $p < .001$, 95% CI = $[-.18, -.08]$, Cohen's $d = .45$. European Americans ($M = 2.92$, $SD = 0.48$) scored higher on approach motivation than did Japanese ($M = 2.78$, $SD = 0.38$), $\beta = .15$, $b = .07$, $SE = .18$, $p < .001$, 95% CI = $[.03, .10]$, Cohen's $d = .32$.

Motivational Orientations Underlie Cultural Differences in Strategic Decision Making

To examine whether approach/avoidance motivation explained the cultural differences in strategic decisions, we conducted a series of regression analyses, with culture (effect coded: Japan = -1 vs. United States = 1) as the predictor, approach/avoidance motivation as mediators, and SDI as the outcome variable. The first two steps of the mediational analysis are presented above, with culture significantly predicting SDI, and culture significantly predicting approach/avoidance motivation.

Then, we regressed SDI on culture, avoidance/approach motivation simultaneously (see SOM for additional analyses looking at avoidance/approach motivation separately and Table 3 for the correlation among key variables). Both avoidance ($\beta = -.11$, $b = -.28$, $SE = .11$, $p = .009$, 95% CI = $[-.49, -.07]$) and approach motivation ($\beta = .12$, $b = .44$, $SE = .15$, $p = .003$, 95% CI = $[.15, .73]$) significantly predicted the SDI. As expected, the association between culture and the SDI observed in the first equation became nonsignificant, $\beta = .05$, $b = .08$, $SE = .07$, $p = .205$, 95% CI = $[-.05, .22]$. To test the indirect effect of mediation, we used PROCESS Model 4 (Hayes, 2018). Results showed that the indirect effect of culture on SDI through avoidance and approach motivation was significant, $b = .07$, $SE = .02$, 95% CI = $[.03, .11]$). This suggested that avoidance and approach motivation combined to explain the cultural difference in strategic decision making (see Figure 4). The indirect effect of culture on SDI through avoidance motivation was

Table 3. Point Biserial Correlation Table of BIS, BAS, and Each SDI Scenario (High Risk-High Reward Option Was Coded as 1, Low Risk-Low Reward Option Was Coded as 0 in Each Scenario).

Scenario	BIS/BAS	Japan + United States	Japan	United States
A	BIS	-.127**	-.101	-.100
	BAS	.089*	.076	.062
B	BIS	-.023	-.067	-.018
	BAS	.103*	.124*	.114
C	BIS	-.056	-.037	.027
	BAS	.095*	.085	.036
D	BIS	-.048	-.053	-.013
	BAS	.078	.023	.126
E	BIS	-.050	.012	-.134*
	BAS	-.024	-.035	-.005
F	BIS	-.013	-.015	-.049
	BAS	-.035	-.017	-.032
G	BIS	-.027	-.017	-.039
	BAS	.068	.110*	.019
H	BIS	-.075	-.026	-.097
	BAS	.067	.086	.023

Note. BAS = behavioral activation system; BIS = behavioral inhibition system; SDI = Strategic Decision Index.

* $p < .05$. ** $p < .01$.

significant, $b = .04$, $SE = .02$, 95% CI = $[.01, .07]$, as was the indirect effect through approach motivation, $b = .03$, $SE = .01$, 95% CI = $[.01, .06]$. In sum, cultural differences in strategic decision making were predicted by the stronger avoidance motivation among fans from Japan and stronger approach motivation among fans from the United States.

General Discussion

Two studies highlight culture-specific ways in which people assess tradeoffs between potential risks and payoffs. Using

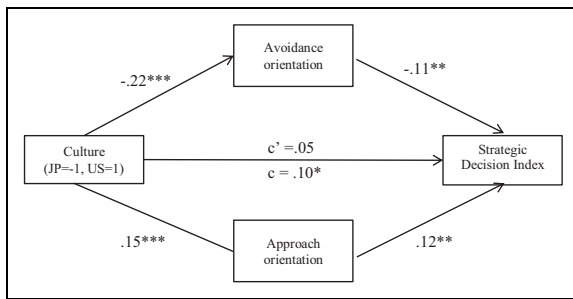


Figure 4. Coefficients are standardized (***) $p < .001$, (**) $p < .01$, (*) $p < .05$.

archival data from professional baseball leagues, we observed systematic differences in real and consequential decision making between approach- and avoidance-oriented cultures. Assessing fans' responses to baseball scenarios, we found a consistent pattern such that Japanese chose low risk-low payoff strategies more than did European Americans, and European Americans chose high risk-high payoff strategies more than did Japanese. We also identified a mechanism as motivational orientation mediated the impact of culture on strategic decision making.

Theoretical and Practical Implications

The present studies sought to understand the real-life implications of cultural differences in basic psychological orientations within a concrete decisional context. Such research provides a pathway from basic research to understanding how psychology and behavior unfold in real-life situations. When contemplating different options, what is an obviously superior choice to one person might not be so obviously superior to others. Culture influences those judgments about potential risks and benefits by determining where the balance point is. Understanding underlying psychological factors driving decision making processes of people from different cultures can lead to identifying solutions that are satisfactory to both parties in intercultural negotiations.

Our research also informs how individuals make decisions and how they assess potential gains and losses in general. Finding consistency between players (Study 1) and fans (Study 2) suggests that players may be responding to intersubjective norms (Chiu et al., 2010). How individuals determine their goals and choices may be influenced by the way others respond to them. Focusing on avoidance goals may be a better strategy for people from collectivistic cultures where their relationships are viewed as stable and with low mobility, whereas emphasizing approach goals may be a better strategy for people from individualistic cultures where their relationships are viewed as malleable and with high mobility (Adams & Plaut, 2003; Yuki & Schug, 2012). Goals, in turn, could drive how people make decisions.

Beyond sports, the present research has broader implications for other important domains to study strategic decision making, such as business settings. Research has found in entrepreneurial

settings that a stronger cultural value of uncertainty avoidance and power distance was associated with reduced risk-taking behavior (Kreiser et al., 2010). Cultural differences in motivational orientations may also underlie such variations in financial risk-taking. Future research could examine how cultural variance in psychological factors explains the differences in people's investment or negotiation strategies between cultures.

Limitations and Future Directions

Study 1 examined actual behavior, but as with many archival studies, there are alternative interpretations. Physical size or strength is likely to also play a role in explaining the cultural differences found in Study 1. Study 2 showed that cultural differences in motivation orientation play a role in explaining cultural differences in strategic decision making. Study 2 also enabled greater control over stimuli and the sample and thus this methodology enabled us to examine a culturally shared view across different situations. Yet, a limitation of Study 2 is its use of hypothetical strategic decision items where the stakes were low, and the effect sizes were relatively small. One reason why the effect size in Study 1 may have been larger than Study 2 is that Study 1 focused on actual behaviors among people engaged in consequential actions, whereas in Study 2, participants made judgments about hypothetical events. The difference in effect size is consistent with a meta-analysis by Morling and Lamoreaux (2008) and Lamoreaux and Morling (2012), which shows how effect sizes for cultural products are consistently larger than self-report measures of the same construct. With baseball as a cultural product, the present study adds to the literature on how cultural differences manifest themselves across behavioral indicators and self-report judgments.

Cultural differences in risky decision making are determined by multiple psychological factors. We focused on approach/avoidance motivation because it is theorized to predict action in immediate and uncertain situations (Elliot & Gable, 2019). Yet other psychological factors are clearly relevant to culture and decision making. The strong focus on interdependence in Japanese culture and the strong focus on independence in American culture may play a role in driving preferences for different strategies. For example, a home run can be viewed as a demonstration of personal strength and success and resonate with Americans' more independent sense of self; bunting may demonstrate self-sacrifice and valuing team success over personal achievement and therefore may resonate with the more interdependent sense of self of Japanese. Cultural differences in optimism bias, the belief of people that they are more likely to experience positive events and less likely to encounter negative events than similar others (Weinstein, 1980), may also relate to how people make risky decisions and are likely intertwined with approach/avoidance orientation. One who is more optimistic is likely to be approach orientated, and a culture that fosters self-serving tendencies is likely to foster greater optimism (Heine & Lehman, 1995). Cultures with high individualism have people who exhibit greater optimism bias (Antonczyk

& Salzman, 2014). People from more individualistic cultures may thus perceive that their risk-taking is more likely to bring a favorable outcome than do people from more collectivistic cultures, and this culturally shared perception may also contribute to their risk-taking.

Conclusion

Winning is the goal in both American and Japanese baseball, but there are cultural differences in the ways that Americans and Japanese, players and fans, pursue this goal through the strategies they choose. A psychological difference in motivational orientation appears to underlie these cultural differences in strategic decision making. Cultures seem to influence not only whether people prefer Cracker Jacks or rice balls but also their preferred way to compete in their games.


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.

ORCID iD

Roxie Chuang  <https://orcid.org/0000-0001-7953-1952>

Supplemental Material

The supplemental material is available in the online version of the article.

Notes

1. A sacrifice bunt occurs when a batter advances one or more runners by bunting the ball while making an out.
2. The American League of Major League Baseball and Pacific League of Nippon Professional Baseball (NPB) adopt the designated hitter (DH) rule, where a DH—a stronger hitter more likely to hit home runs—is assigned to bat in place of the pitcher. The Central League and the National League let the pitchers hit, who are more likely (as weaker hitters) to sacrifice bunt. Therefore, we include league (DH rule vs. no DH rule) as a factor in our analyses.
3. One factor that could account for variability across seasons was Japan's decision to change its baseballs. NPB changed their ball configurations in 2011 in such a way that may have led to reduced home run production (Jaffe, 2013) but then changed again in 2013 to increase home run production (Bangkok Post, 2013; Brisbee, 2013). In Supplemental Online Material (SOM), we report additional analyses that omit 2011 and 2012 seasons. Results remained consistent with our hypotheses. In SOM, we also report additional analyses for home runs, strikeouts, and sacrifice bunts from a sample of 10 tournaments (four Olympics, four World Baseball Classics, and two Premier 12 competitions), where statistics for United States and Japan were available. In these tournaments, the teams used identical equipment. Results were in consistent direction with the primary analyses reported here (overall sign test was

significant with 22/28 comparisons supporting our predictions ($p = .003$) and paired t -tests significant for strikeouts and sacrifice bunts). See SOM (<https://mfr.osf.io/render?url=https://osf.io/mbzcg/?direct%26mode=render%26action=download%26mode=render>).

4. This study was preregistered on Open Science Framework (OSF; <https://osf.io/md2fb>). The data and code for Studies 1 and 2 are available on OSF (https://osf.io/cqxs2/?view_only=f6be86aa336d451bb05182972104c694). The materials for Study 2 are also available on OSF (<https://mfr.osf.io/render?url=https://osf.io/yr6v5/?direct%26mode=render%26action=download%26mode=render>).
5. Using the average of the effect sizes found (.25) during pilot study (see SOM), we conducted an a priori power analysis (two tailed, $\alpha = .05$). To achieve power of .80 would require 120 participants. Given less familiarity with Japanese participants' characteristics, we set out to collect data from 200 Americans and 200 Japanese, which would allow us to detect an effect size of .20 between approach/avoidance motivation and baseball strategic decision making. Although we preregistered for 200 Americans and 200 Japanese, we collected data from more participants to have sufficient sample size given exclusion criteria. Data analysis did not occur until all data were collected. (The effect size differs slightly from the effect size (.23) in our preregistration that was based on a calculation error. Nevertheless, the targeted sample size was exactly as preregistered as we intended to oversample a priori.)

References

- Aaker, J. L., & Lee, A. Y. (2001). "I" seek pleasures and "we" avoid pains: The role of self-regulatory goals in information processing and persuasion. *Journal of Consumer Research*, 28(1), 33–49. <https://doi.org/10.1086/321946>
- Adams, G., & Plaut, V. C. (2003). The cultural grounding of personal relationship: Friendship in North America and West African worlds. *Personal Relationships*, 10(3), 283–451. <https://doi.org/10.1111/1475-6811.00053>
- Antonczyk, R. C., & Salzman, A. J. (2014). Overconfidence and optimism: The effect of national culture on capital structure. *Research in International Business and Finance*, 31, 132–151. <https://doi.org/10.1016/j.ribaf.2013.06.005>
- Arrow, K. J. (1965). *Aspects of the theory of risk-bearing*. Cambridge University Press.
- Bangkok Post Publication Limited. (2013, June 12). Japan baseball chiefs admit lying over ball change. Retrieved November 17, 2020, from <https://www.bangkokpost.com/sports/354749/japan-baseball-chiefs-admit-lying-over-ball-change>
- Baseball Reference. (2019). *MLB team statistics*. <https://www.baseball-reference.com/>
- Berkman, E. T., Lieberman, M. D., & Gable, S. L. (2009). BIS, BAS, and response conflict: Testing predictions of the revised reinforcement sensitivity theory. *Personality and Individual Differences*, 46(5–6), 586–591. <https://doi.org/10.1016/j.paid.2008.12.015>
- Brisbee, G. (2013, June 12). Japan admits to juicing balls. Retrieved November 28, 2020, from <https://www.sbnation.com/hot-cornet/2013/6/12/4424132/japan-npb-juicing-balls>

- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology*, *67*(2), 319–333. <https://doi.org/10.1037/0022-3514.67.2.319>
- Chiu, C.-Y., Gelfand, M. J., Yamagishi, T., Shteynberg, G., & Wan, C. (2010). Intersubjective culture: The role of intersubjective perceptions in cross-cultural research. *Perspectives on Psychological Science*, *5*(4), 482–493. <https://doi.org/10.1177/1745691610375562>
- Cyders, M. A., & Smith, G. T. (2008). Emotion-based dispositions to rash action: Positive and negative urgency. *Psychological Bulletin*, *134*(6), 807–828. <https://doi.org/10.1037/a0013341>
- Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist*, *34*(3), 169–189. https://doi.org/10.1207/s15326985ep3403_3
- Elliot, A. J. (2006). The hierarchical model of approach-avoidance motivation. *Motivation and Emotion*, *30*(2), 111–116.
- Elliot, A. J., Chirkov, V. I., Kim, Y., & Sheldon, K. M. (2001). A cross-cultural analysis of avoidance (relative to approach) personal goals. *Psychological Science*, *12*(6), 505–510. <https://doi.org/10.1111/1467-9280.00393>
- Elliot, A. J., & Gable, S. L. (2019). Functions and hierarchical combinations of approach and avoidance motivation. *Psychological Inquiry*, *30*(3), 130–131. <https://doi.org/10.1080/1047840X.2019.1646042>
- Gray, J. A. (1990). Brain systems that mediate both emotion and cognition. *Cognition and Emotion*, *4*(3), 269–288.
- Hamamura, T., Meijer, Z., Heine, S. J., Kamaya, K., & Hori, I. (2009). Approach–avoidance motivation and information processing: A cross-cultural analysis. *Personality and Social Psychology Bulletin*, *35*(4), 454–462. <https://doi.org/10.1177/0146167208329512>
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.
- Heine, S. J., Kitayama, S., Lehman, D. R., Takata, T., Ide, E., Leung, C., & Matsumoto, H. (2001). Divergent consequences of success and failure in Japan and North America: An investigation of self-improving motivations and malleable selves. *Journal of Personality and Social Psychology*, *81*(4), 599–615. <https://doi.org/10.1037/0022-3514.81.4.599>
- Heine, S. J., & Lehman, D. R. (1995). Cultural variation in unrealistic optimism: Does the West feel more vulnerable than the East? *Journal of Personality and Social Psychology*, *68*(4), 595–607. <https://doi.org/10.1037/0022-3514.68.4.595>
- Jaffe, J. (2013, June 12). A juiced baseball scandal in Japan. Retrieved November 17, 2020, from <https://www.si.com/mlb/2013/06/12/japan-juiced-baseballs>
- Jordan, D. (2018, November 20). *Home runs and strikeouts: Another look*. Society for American Baseball Research. <https://sabr.org/journal/article/home-runs-and-strikeouts-another-look/>
- Kim, H. S., & Lawrie, S. I. (2019). Culture and motivation. In D. Cohen & S. Kitayama (Eds.), *Handbook of cultural psychology* (2nd ed.). The Guilford Press.
- Kitayama, S., Markus, H. R., & Kurokawa, M. (2000). Culture, emotion, and well-being: Good feelings in Japan and the United States. *Cognition & Emotion*, *14*(1), 93–124. <https://doi.org/10.1080/026999300379003>
- Kreiser, P. M., Marino, L. D., Dickson, P., & Weaver, K. M. (2010). Cultural influences on entrepreneurial orientation: The impact of national culture on risk taking and proactiveness in SMEs. *Entrepreneurship Theory and Practice*, *34*(5), 959–984. <https://doi.org/10.1111/j.1540-6520.2010.00396.x>
- Kuhn, A. (2015, August 28). *The secret to Japan's little league success: 10-hour practices*. North State Public Radio. <https://www.mynspr.org/post/japans-little-league-teams-train-be-winners#stream/0>
- Lamoreaux, M., & Morling, B. (2012). Outside the head and outside individualism–collectivism: Further meta-analyses of cultural products. *Journal of Cross-Cultural Psychology*, *43*(2), 299–327. <https://doi.org/10.1177/0022022110385234>
- Lapchick, R., Neelands, B., Estrella, B., Rainey, P., & Gerhart, Z. (2018, April 12). *The 2018 racial and gender report card: Major league baseball*. TIDES The Institute for Diversity and Ethics in Sports. https://43530132-36e9-4f52-811a-182c7a91933b.filesusr.com/ugd/a4ad0c_45a59c127e964bb9a8b722267141e3fa.pdf
- Lee, A. Y., Aaker, J. L., & Gardner, W. L. (2000). The pleasures and pains of distinct self-construals: The role of interdependence in regulatory focus. *Journal of Personality and Social Psychology*, *78*(6), 1122–1134. <https://doi.org/10.1037/0022-3514.78.6.1122>
- March, J. G., & Shapira, Z. (1987). Managerial perspectives on risk and risk taking. *Management Science*, *33*(11), 1404–1418. <https://doi.org/10.1287/mnsc.33.11.1404>
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*(2), 224–253. <https://doi.org/10.1037/0033-295X.98.2.224>
- McNaughton, N., & Gray, J. A. (2000). Anxiolytic action on the behavioral inhibition system implies multiple types of arousal contribute to anxiety. *Journal of Affective Disorders*, *61*(3), 161–176. [https://doi.org/10.1016/S0165-0327\(00\)00344-X](https://doi.org/10.1016/S0165-0327(00)00344-X)
- Morling, B., & Lamoreaux, M. (2008). Measuring culture outside the head: a meta-analysis of individualism–collectivism in cultural products. *Personality and Social Psychology Review*, *12*(3), 199–221. <https://doi.org/10.1177/1088868308318260>
- Nicholson, N., Soane, E., Fenton-O’Creevy, M., & Willman, P. (2005). Personality and domain-specific risk taking. *Journal of Risk Research*, *8*(2), 157–176. <https://doi.org/10.1080/1366987032000123856>
- Stark, J. (2009, February 8). *A-Rod has destroyed game’s history*. ESPN. https://www.espn.com/mlb/columns/story?columnist=stark_jayson&id=3892788
- Uskul, A. K., Sherman, D. K., & Fitzgibbon, J. (2009). The cultural congruency effect: Culture, regulatory focus, and the effectiveness of gain- vs. loss-framed health messages. *Journal of Experimental Social Psychology*, *45*(3), 535–541. <https://doi.org/10.1016/j.jesp.2008.12.005>
- Weber, E. U., & Hsee, C. K. (2000). Culture and individual judgment and decision making. *Applied Psychology: An International Review*, *49*(1), 32–61. <https://doi.org/10.1111/1464-0597.00005>
- Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, *39*(5), 806–820. <https://doi.org/10.1037/0022-3514.39.5.806>

Yuki, M., & Schug, J. (2012). Relational mobility: A socioecological approach to personal relationships. In O. Gillath, G. Adams, & A. Kunkel (Eds.), *Relationship science: Integrating evolutionary, neuroscience, and sociocultural approaches* (pp. 137–151). American Psychological Association. <https://doi.org/10.1037/13489-007>

一般社団法人日本野球機構. (Nippon Professional Baseball.jp). Retrieved September 14, 2020, from <http://npb.jp/>

Author Biographies

Roxie Chuang is a doctoral student at the University of California, Santa Barbara. Her research interests include cultural influences on decision making, attitude behavior consistency, and cultural biases in education.

Keiko Ishii is an associate professor of psychology at Nagoya University. Her research focuses on cultural differences in perception, cognition, and emotion.

Heejung S. Kim is a professor in the Department of Psychological and Brain Sciences at the University of California, Santa Barbara. Her research focuses on cultural influences on social, cognitive, and affective processes.

David K. Sherman is a professor in the Department of Psychological and Brain Sciences at the University of California, Santa Barbara. His research focuses on how people cope with threatening events and information.

Handling Editor: Lisa Libby