



# Cultural models of education and academic performance for Native American and European American students

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## Abstract

We examined the role of cultural representations of self (i.e., interdependence and independence) and positive relationships (i.e., trust for teachers) in academic performance (i.e., self-reported grades) for Native American ( $N = 41$ ) and European American ( $N = 49$ ) high school students. The Native American students endorsed marginally more interdependent representation of self and marginally less trust for teachers than did the European American students. While interdependent representations of self and trust for teachers were positively related for the Native American students, neither cultural representations of self were related to trust for teachers for the European American students. However, with respect to academic performance, interdependent representations of self and trust for teachers were positively related to academic performance for the Native American students. Conversely, independent and interdependent representations of self were positively related to academic performance for the European American students, but trust for teachers was not associated with academic performance. Finally, as predicted, culturally congruent representations of self predicted academic performance. Specifically, trust for teachers and interdependent representations of self positively predicted academic performance for Native American students, whereas only independent representations of self predicted academic performance for European American students. Implications for culturally congruent models of education are discussed.

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In U.S. public schools, possessing a social identity that is commonly underrepresented in the classroom (e.g., racial-ethnic identity, working-class identity) is a strong indicator of disparities in academic achievement. For example, in the 12 states with the largest populations of Native American students, graduation rates reveal that while 71.4% of all students graduate from high school, fewer than 50% of Native American students graduate (Faircloth & Tippeconic, 2010). Efforts to close the achievement gap range from eliminating negative stereotypes and low expectancies of underrepresented racial-ethnic minority students to improving teachers' understandings of cultural differences and culture- and self-relevant curriculum for racial-ethnic minority students. These approaches contend that when the school environment is free from negative stereotypes (Davies, Spencer, & Steele, 2005; Markus, Steele & Steele, 2000; Purdie-Vaughns, Steele, Davies, Dittmann, & Crosby, 2008) and the curriculum is perceived as self-relevant (Gay, 2004; Ladson-Billings, 1995; Maehr, 2008), students will experience identity safety—they will perceive the school environment as a place where they belong and can be successful.

Research reveals, however, that even subtle cues conveyed in the school environment can affect feelings of identity safety and self-relevance, and ultimately foster or undermine academic performance (Cohen, Garcia, Apfel, & Master, 2006; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012; Walton & Cohen, 2007). For instance, Cohen and colleagues (2006) found that a small, subtle intervention aimed at affirming students' sense of self and undermining negative stereotypes in school, improved grades and alleviated the achievement gap by 40%. These small interventions, however, are not limited to reversing the negative effects of stereotypes. Stephens and colleagues (2012) found, for instance, that small interventions also alleviate the effects of cultural incongruities. Specifically, over the first two years of college, they found that when the cultural norms (i.e., encouraging independence, choice, and self-expression) match, as they did for continuing-generation college students whose parents have four-year college degrees, the students perform better (i.e., higher grades) than when they do not match, as was the case for first-generation college students whose parents do not have four-year college degrees. To reduce this disparity in performance, the researchers provided a culture-relevant message that subtly framed the university context as more interdependent. Much like the intervention by Cohen and colleagues, this small change in framing alleviated the discrepancies in performance between first-generation and continuing-generation college students.

In this study, we provide an initial test of how subtle messages about the good or right way to be a person (i.e., cultural representations of self) influences academic achievement for both Native American and European American students. Research reveals that Native American and European American students endorse

different models of self and that these models have implications for educational experience (Boykin et al., 2005; Fryberg & Markus, 2007; Li 2003, 2005; Stephens et al., 2012). We anticipate that when students endorse culturally congruent representations of self—Native American students will endorse an interdependent representation of self and European American students will endorse an independent representation of self—they will also report better academic performance.

## Cultural models of education

When students enter the classroom, they bring with them frameworks of tacit assumptions and meanings that reflect their social and developmental experiences (Resnick, 1994). Cognitive anthropologists refer to these assumptions and meanings as ‘cultural models’ (D’Andrade, 1981, 1995; Holland & Quinn, 1987; Shore, 1996; Sperber, 1985). Building on this work, Fryberg and Markus (2007, p. 237) used the term ‘cultural models of education’ to refer to the patterns of ideas and practices that are implicit in education contexts, including ideas about who is a good student, the purpose of getting an education, and the nature of the teacher-student relationship. The authors argue that while mainstream educational contexts may appear to promote a ‘neutral’ model of education, they actually foster a culture-specific model of education. For example, in university contexts, which typically represent middle-class European American values, the good or appropriate way to be a self is to be independent and separate from others and from the social context. This view has been termed the *independent* representation of self (Markus & Kitayama, 2010, Markus, Mullally, & Kitayama, 1997). Other cultural contexts, such as those in East Asian, Latino, Native American, and African contexts, foster a view of the self as fundamentally connected to others and to the surrounding social context. This view has been termed *interdependent* representations of the self.

In classrooms that reflect and foster independent representations of self, ‘learning’ is largely about the development of autonomous and independent ways of thinking (Bellah et al., 1985; Bruner, 1996; Greenfield, Trumbull, & Keller, 2006; Greenfield, Trumbull, & Rothstein-Fisch, 2003; Tharp, 1994). Learning styles are motivated by widely held cultural values of individuality, uniqueness, and the importance of making individual choices (Tobin, Wu, & Davidson, 1989). Good students should take individual responsibility for their academic success and should strive to distinguish themselves from others (Plaut & Markus, 2005). Consequently, individual competition and achievement are generally more valued than collaboration and cooperation (Green, 2006; Platow & Shave, 1995; Trumbull, Rothstein-Fisch, & Greenfield, 2000). Teachers reify these values by focusing on and rewarding individual effort and achievement, and evaluating individual contributions to group performance (Deyhle, 1985, 1986, 1992; Fiske, Kitayama, Markus, & Nisbett, 1998).

In classrooms that foster interdependent representations of self, however, learning occurs primarily in interactions with others (Boykin et al., 2005; Escalante &

Dirmann, 1990; Greenfield et al., 2003; Tobin et al., 1989; Trumbull et al., 2000). In these contexts, perceived social support, mentorship, maintaining strong connections to the community, and trusting relationships with teachers positively impact persistence and academic achievement (Cole, Matheson, & Anisman, 2007; Cummins, 1992; Deyhle & Margonis, 1995; Fryberg & Markus, 2007; Gloria & Kurpius, 2001). For example, Native American students who engaged in a collaborative learning environment demonstrated improved academic learning and motivation (Deyhle & Swisher, 1997).

One reason that collaborative learning environments are effective in creating positive academic outcomes is because they allow Native American students to develop positive, trusting relationships in school. Fryberg and Markus (2007), for instance, found that interdependent representations of self and trust for teachers were positively associated for Native American college students, but not for European American college students. The study suggested that if Native American students are more relational or interdependent in their representations of self, then trust is likely to be an essential feature of the student-teacher relationship. One limitation, however, is that while the study shows that Native American and European American college students endorse different representations of self and different expectations for the student-teacher relationship, it does not examine whether these factors are important for academic achievement and for younger students (i.e., high school students), a time in schooling where students experience greater discrepancies in achievement.

In this initial study, we assess the role of Native American and European American high school students' cultural representations of self (i.e., interdependence versus independence) and positive relationships (i.e., trust for teachers) in academic performance (i.e., self-reported grades). Based on prior research, we anticipate that Native American students will report more interdependent representations of self and less trust for teachers than European American students, and that the two groups will not differ in terms of independent representations of self. In terms of academic performance, we anticipate that interdependent representations of self and trust for teachers (i.e., an indication of positive relationships in school) will predict grades for Native American students, whereas independent representations of self will predict grades for European American students.

## Method

### *Participants*

The participants included 41 Native American (24 females;  $M$  age = 15.63,  $SD$  = 1.53) and 49 European American (26 females;  $M$  age = 15.45,  $SD$  = 1.21) high school students from a rural location in Washington State, USA. Among the approximately 1600 students enrolled in the school, 9% are Native

American. The students were informed of the purpose and logistics of the study in their English classes and were randomly selected from the consent forms signed by both the student and parents or guardians.

### *Procedure and materials*

All the students were instructed that the purpose of the study was to learn more about their educational experiences. They were informed that their answers were completely confidential and that they could discontinue the study at any time without penalty. At this time, students completed questionnaire packets that included the dependent measures.

Interdependence and independence were measured with four sub-scales (alphas ranging from 0.71 to 0.85) from Kato and Markus (1994). The Interdependence scale included 16 items (e.g., 'It is important to me that I make a favorable impression on others', and 'If someone helps me, I feel a strong obligation to return the favor sometime later') that measured concern for others and self-other bond. The Independence scale consisted of 15 items (e.g., 'I am unique—different from others in many respects', and 'No matter what is the situation or setting, I am always true to myself') that measured self-other differentiation and self-knowledge. Students rated how well the items described them on a scale from 0 (doesn't describe me at all) to 9 (describes me very much). The internal reliabilities for interdependence was  $\alpha = 0.81$  (Native American = 0.76; European American = 0.82) and independence was  $\alpha = 0.78$  (Native American = 0.68; European American = 0.75).

Trust for teachers was measured using a sub-set of five items from the *Cultural Mistrust Inventory* (Terrell & Terrell, 1981). Example items included: 'Teachers often ask questions so they can get something on you', 'You usually get the grade you deserve from a teacher', 'You can talk to a teacher about things without worrying that it will come back on you later', and 'Teachers often twist things to make students look bad'. Students were asked to rate how much they disagreed or agreed with each statement on a scale from 1 (strongly disagree) to 5 (strongly agree). All the questions were recoded such that a higher score indicated higher trust. The internal reliability for the measure was psychometrically sufficient,  $\alpha = 0.74$  (Native American = 0.74; European American = 0.79).

Finally, to measure academic performance, students were asked to rate on an eight-point scale, with 0 indicating mostly F's and 8 indicating mostly A's, the following item: 'What grades do you usually get in school?'

## **Results**

### *Independent/interdependent representations of self*

An ethnicity (Native American, European American) x gender (female, male) multivariate analysis of variance (MANOVA) for independent and interdependent

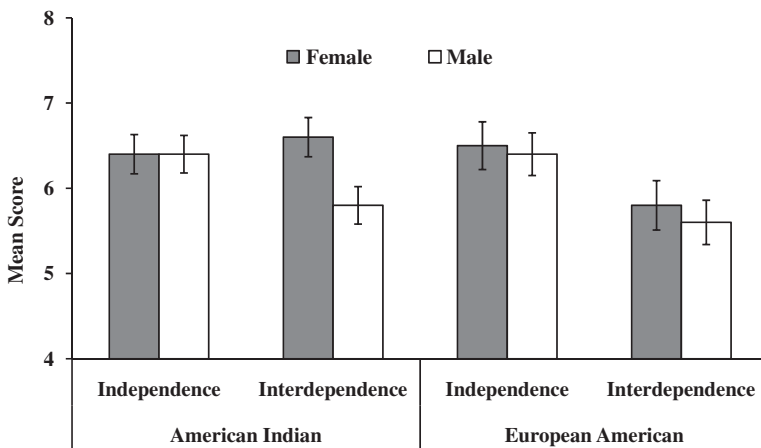
representations of self was performed using age as a covariate (ns). No main effects for independent representations of self by ethnicity,  $F(1,85)=0.02, p=0.98$ , or gender,  $F(1,85)=0.19, p=0.92$ , were found, but main effects for interdependent representations of self by ethnicity,  $F(1, 85)=3.19, p<0.08$ , and by gender,  $F(1, 85)=4.24, p<0.05$ , were found. Specifically, Native American students were marginally more interdependent than European American students, and female students were more interdependent than male students. See Figure 1 for means.

**Trust for teachers**

An ethnicity (Native American, European American)  $\times$  gender analysis of variance (ANOVA) on trust for teachers revealed a marginal main effect for ethnicity,  $F(1, 61)=2.89, p<0.09$ . Native American students were somewhat less trusting of teachers ( $M=3.30, SD=1.19$ ) than were European American students ( $M=3.69, SD=1.38$ ).

**Relationship between representations of self and trust for teachers**

For Native American high school students, a positive relationship was found between interdependent representations of self and both trust for teachers ( $r=0.36, p<0.05$ ) and self-reported grades ( $r=0.50, p<0.001$ ). Trust for teachers was also positively correlated with self-reported grades ( $r=0.44, p<0.01$ ). However, no relationship was found between independent representations of self and trust for teachers ( $r=-0.04, p=0.90$ ) or academic performance ( $r=0.16, ns$ ).



**Figure 1.** Mean scores of independent and interdependent representations of self by ethnicity and gender.

For European American high school students, significant relationships were found between both independent representations of self and academic performance ( $r=0.32$ ,  $p<0.05$ ) and interdependent representations of self and academic performance ( $r=0.31$ ,  $p<0.05$ ). However, no significant relationships were found between interdependent representations of self and trust for teachers ( $r=0.18$ ,  $p=0.50$ ) independent representations of self and trust for teachers ( $r=0.03$ ,  $p=0.92$ ), or between trust for teacher and grades ( $r=0.13$ ,  $p=0.61$ ).

### *Academic performance*

*Predicting self-reported academic performance.* An ethnicity (Native American, European American) x gender ANOVA was used to compare self-reported grades. Main effects were found for both ethnicity and gender, as the European American students ( $M=6.06$ ,  $SD=1.53$ ) reported higher grades than the Native American students ( $M=5.10$ ,  $SD=2.11$ ),  $F(1, 87)=6.15$ ,  $p<0.02$ , and the female students reported higher grades ( $M=6.04$ ,  $SD=1.78$ ) than the male students ( $M=5.05$ ,  $SD=1.96$ ),  $F(1, 87)=6.33$ ,  $p<0.02$ .

We first examined how cultural representations of self (independent and interdependent), trust for teachers, and ethnicities were related to grades. We reasoned that if an interaction was found between ethnicity and the other predictor variables, then performing separate analyses for each ethnic group would be an appropriate next step. A stepwise regression with grades as the dependent variable and with ethnicity, independent representations of self, interdependent representations of self, independent representations of self by ethnicity interaction, and interdependent representations of self by ethnicity interaction as the independent variables revealed that interdependent representations of self by ethnicity interaction,  $p<0.001$ , was the first significant predictor of grades, and independent representations of self,  $p<.05$ , was the second significant predictor variable.

In the second set of analyses, separate stepwise regressions were performed for independent and interdependent representations of self. In the first regression, grades were the dependent variable while ethnicity, independent representations of self, and independent representations of self by ethnicity were the independent variables. The only significant finding was the independent representations of self by cultural context interaction,  $p<0.001$ . Similarly, in the second regression, grades were the dependent variable and ethnicity, interdependent representations of self, and interdependent representations of self by ethnicity were the independent variables. Again, the only significant variable was the interdependent representations of self by ethnicity interaction,  $p<0.001$ .

Based on these analyses, we concluded that ethnicity interacts differently with the predictor variables and, thus, regression analyses were run separately for both ethnic groups. In both stepwise regressions, grades were the dependent variable, and trust for teachers, independent representations of self, and interdependent representations of self were the independent variables (see Table 1 for standardized regression coefficients). For the Native American students, the two predictor

**Table 1.** Standardized regression coefficients for predictors of self-reported grades

Predictor variables	American Indians	European Americans
Independent representations of self	-0.28†	0.39*
Interdependent representations of self	0.38**	0.25
Trust for teachers	0.41**	0.26
R <sup>2</sup>	0.36***	0.15*

Note: † $p < 0.10$ ; \* $p < 0.05$ ; \*\* $p < .01$ ; \*\*\* $p < 0.001$ .

variables of trust for teachers,  $p < 0.01$ , and interdependent representations of self,  $p < 0.01$ , were significant. For the European American students, only the predictor variable of independent representations of self was significant,  $p < 0.01$ .

## Discussion

The purpose of the present study was to provide preliminary evidence for how cultural representations of self (interdependent self versus independent self) and relationships in school (i.e., trust for teachers) contribute to academic performance for Native American and European American high school students. We anticipated that if students reported a culturally congruent representation of self—Native American students endorse an interdependent self and European American students endorse an independent self—then they would also report higher academic performance (i.e., grades).

We found that Native American students marginally endorsed more interdependent representation of self and less trust for teachers than European American students. Consistent with Fryberg and Markus (2007), interdependent representations of self and trust for teachers were positively related for Native American students. Neither independent nor interdependent representations of self were related to trust for teachers for European American students. With respect to academic performance, interdependent representations of self and trust for teachers were positively related to academic performance for Native American students. Conversely, independent and interdependent representations of self were positively related to academic performance for European American students, but trust for teachers was not associated with representations of self or academic performance. In terms of predicting academic performance (i.e., self-reported grades), as expected, trust for teachers and interdependent representations of self positively predicted performance for Native American students, whereas only independent representations of self predicted performance for European American students.

The theoretical and practical implications of this study suggest that the largely independent focus of mainstream educational contexts (Fryberg & Markus, 2007; Li, 2003; Stephens et al, 2011) may contribute to the underperformance of Native American students, as in the case of traditional classrooms in which ‘learning’ is construed as being about the development of autonomous thinking (Bellah et al.,



1985; Bruner, 1996; Tharp, 1994). Given that this norm is culturally incongruent for Native American students, the focus on autonomous thinking or independence may inadvertently convey to Native American students that they do not belong and cannot be successful in that environment. Accordingly, building on the work of social identity threat (Davies et al., 2005; Purdie-Vaughns et al., 2008; Walton & Cohen, 2007), the independent focus contributes to the perception that traditional classrooms are not identity safe contexts.

The findings from this study also suggest a need to rethink the nature of the student-teacher relationship. Most American teachers do not assume that successfully teaching students requires building positive, trusting relationships; but the findings suggest that this expectation is critical for potentially alleviating the achievement gap for Native American students. The need for positive trusting relationships and interdependent representations of self also highlights a gender difference as Native American female students as compared to male students reported higher interdependent representations of self, a strong predictor of performance in this group. This theoretical link may help explain some of the gender discrepancies between Native American females and males, but needs to be followed up in larger cohorts.

The findings are also relevant to theorizing about cultural models of education. Consistent with previous research on cultural models of education, the findings suggest that, much like first-generation college students (Stephens et al., 2011), Native American students may feel a greater sense of belonging and motivation when the education context matches their own cultural understandings of self. Despite the lower than (national) average graduation rates among Native American high school students (Faircloth & Tippeconic, 2010), the findings from this study suggest that if teachers, school psychologists and administrators focus on building relationships and including interdependent ways of being in the classroom, they can create identity safe contexts and thus, enhance academic performance for Native American students. Further, it is recommended that school psychologists be directly involved in conducting these types of studies, implementing interventions based on these findings, and aiding other staff as they provide educational and psychological services for these types of indigenous populations. These types of findings have direct implications, then, for the school psychologists who may provide the liaison assistance for teachers, administrators, and other school staff. School psychologists are in a unique position to inform school staff who work with indigenous students living in the U.S. and in other geographic locations and to help to implement best practice according to the findings of this study. Although future studies are needed to parse out the different approaches to creating culturally congruent models of education, the findings here suggest that teachers and administrators, with the help of sensitive and knowledgeable school psychologists, can begin to alleviate the achievement gap by fostering relationships with Native American students and orienting classroom styles to meet these students own cultural understandings of self.

Finally, issues experienced by Native American students are not dissimilar to those faced by Bedouins (Landsman, 1990) and Ethiopian immigrants (Rosenblum, Goldblatt, & Moin, 2008) in Israel. Furthermore, there are similarities to the experiences faced by other indigenous populations: the Maori in New Zealand (Little, Akin-Little, & Johansen, 2013); the rural Javanese villagers in Indonesia specifically post natural disaster (Seyle, Widyatmoko, & Cohen Silver, 2013); the Kuku in Southern Sudan (Laguarda & Woodward, 2013); the Indigenous Australian youth (Yeung, Craven, & Ali, 2013); and the Naskapi youth of Canada (Burack et al., 2013). Thus, all school personnel, particularly school/educational psychologists, are encouraged to attend to the findings of this special edition of *School Psychology International*, specifically if they work with rural and/or indigenous populations (see Yeung et al. for recommendations).

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