A Cross-Cultural Comparison of the Association between Emotional Intelligence and Academic

Performance

Abigail Cobb and Craig S. Bailey[*]

Yale University[a]

Seiki Tanaka

University of Amsterdam[b]

Sherri Widen

Stanford University[c]

[a] Yale University
340 Edwards St.
New Haven, CT 06511
USA

[b] University of Amsterdam
Department of Political Science
Amsterdam Roeterseiland Campus
Nieuwe Achtergracht 166
1018 WV Amsterdam
Netherlands

[c] Stanford University
Center for Education Policy Analysis
520 Galvez Mall, CERAS Building, 5th Floor
Stanford, CA 94305-3001

[*]Corresponding Author
craig.bailey@yale.edu
1-203-432-9475

Abstract

Academic performance in the United States consistently falls below the performance of other countries. Recent research has linked children's social and emotional skills with academic performance. Using samples from the United States and Japan, we assessed 8–11-year-olds reading and math performance and aspects of their emotional intelligence (i.e., perception, understanding, and regulation). Results revealed that Japanese students tended to score higher on math (OR = 1.46), whereas American students tended to score higher on reading (OR = 1.27) and emotional intelligence (ORs = 1.25–2.38). Equally for both countries, emotion understanding predicted math scores. Emotion regulation and reading scores were also associated, but only for Japanese students. Results elucidate the achievement gap between the United States and Japan.

Highlights

- Japanese students tended to score higher on math.

- American students tended to score higher on reading and emotional intelligence.

- Emotion understanding predicted math scores in both samples.

- Emotion regulation and reading scores were also associated, but only for Japanese students.

- Results elucidate the achievement gap between the United States and Japan.

Keywords: Emotional intelligence, cross-cultural comparisons, academic performance, Japan

A Cross-Cultural Comparison of the Relationship between Emotional Intelligence and Academic

Performance

1. Introduction

Schools in the United States are underperforming when compared to their international

peers (Boe & Shin, 2005). Rankings from the 2012 Program for International Student

Assessment (PISA)[1]—an international assessment that measures 15-yaer-old students' reading,

math, and science literacy as well as problem solving abilities—indicated that the United States

ranked 36th in the world on math and reading assessments (PISA, 2012). By comparison, Japan

ranked in the top ten on the same assessments. This finding was consistent with a separate

international assessment—the Trends in International Mathematics and Science Study (TIMSS)[2]

which assesses students in grades 4, 8, and 12—in which Japan also outperformed the United

States (Provasnik et al., 2012). By using international samples as a frame of reference, we may

better understand educational programming within the United States to develop solutions to close

the international achievement gap.

A recent national and international trend has been to address upper-elementary and

middle-school children's social and emotional learning (SEL)[3] needs as a pathway to boost

academic outcomes, because research supports social and emotional skills as a significant

contributor to children's academic performance (Brackett, Rivers, Shiffman, Lerner, & Salovey,

2006; Payton et al., 2008). Broadly defined by the Collaborative for Academic, Social, and

Emotional Learning (CASEL)[4], social and emotional skills encompass *self-awareness, self-*

management, *social awareness*, *relationship skills*, and *responsible decision-making* (CASEL,

---

[1] PISA: Program for International Student Assessment
[2] TIMSS: Trends in International Mathematics and Science Study
[3] SEL: Social and Emotional Learning
[4] CASEL: Collaborative for Academic, Social, and Emotional Learning
[5] MSCEIT: Mayer-Salovey-Caruso Emotional Intelligence Test

2016). SEL programs in the United States have been associated with increases in academic

performance for students in elementary and middle-school (Payton et al., 2008). Moreover, a

meta-analysis conducted by Durlak and colleagues (2011) of 213 SEL programs implemented in

the United States showed that SEL programming was associated with, on average, an 11% gain

in academic performance. Based on this research, many researchers and educational

stakeholders view improving SEL as a way to promote gains in student academic performance.

A tertiary goal of SEL programming is to close the achievement gap between the United States

and its international peers. Although the research supporting SEL and children's academic

performance within countries such as the United States is growing, there are very few

explorations of these associations *between* countries. The current study explores associations

between a specific subset of social and emotional skills—emotional intelligence—and academic

performance among elementary-aged children in the United States and Japan, which may help

elucidate the international achievement gap and provide evidence for education reform that

includes SEL.

1.1. Emotional Intelligence as an Ingredient to Learning

Emotional intelligence according to the four-branch model developed and theorized by

Salovey and Mayer (1990) includes the *perception of emotion*, *the use of emotion to facilitate*

thought, *the understanding of emotion*, and *the management of emotion.* Together, these skills

work in tandem to promote emotional and educational growth (Mayer & Salovey, 1997).

Perception of emotion is the identification and interpretation of emotion in oneself and others

(Salovey & Mayer, 1990). Consequently, accurate emotion perception is foundational to the

other three branches and allows for the use of personal and social information (Coetzee, 2007).

The *understanding of emotion* includes knowledge of how emotions influence perception,

memory, and behavior (Salovey & Mayer, 1990). Emotional processing can hijack cognitive processes, rendering students distracted or overconfident. Insight into how these associations operate personally and socially provides students with information on how to navigate challenging personal and social situations. Emotions such as confidence, curiosity, and engagement can also positively affect learning. Emotionally intelligent students consider what makes them curious and engaged and use that information to tailor their academic experiences. With a limited understanding of emotion, a student can easily fall victim to their emotions, entering emotional states that hinder academic performance.

Key to emotional intelligence is not only perceiving and understanding emotion-relevant information, but using that information with respect to one's goals. Cognitively, this aspect of emotional intelligence is known as using *emotion to facilitate thought* (Salovey & Mayer, 1990). The extension of cognitive development beyond mere memorization and regurgitation of class content relies on emotion to foster creative interpretations and discussion. Finally, the *regulation of emotion* is the awareness and use of effective strategies to manage emotions in self and others (Salovey & Mayer, 1990). If students know how to regulate their emotions, they are poised to use strategies when they are in ineffective emotional states, shifting thinking, managing their behavior, and controlling their physiology to help them meet their goals (Coetzee, 2007). The social and emotional skills of emotional intelligence work synergistically to allow students to think about and manage their emotions in a way that facilitates social competence and importantly, academic performance.

1.2. Development of Emotional Intelligence in Children

Children begin developing the requisite cognitive and emotional abilities necessary for emotional intelligence as early as the first days of life, and growth continues throughout the

lifespan (Zeidner, Matthews, Roberts, & MacCann, 2003). The trajectory of emotional intelligence spans from early emotion perception (e.g., eye tracking in infants) and preverbal emotion regulation strategies (e.g., babbling) early in life to increasingly complex cognitive strategies that develop in preschool (e.g., social skills) and continue developing into adulthood (e.g., complex emotion perception and regulation; Saarni, 2000). Emotion perception is one of the first skills to emerge in early childhood, and there is a clear sequence for development of this skill (Zeidner et al., 2003). For example, as children become more skilled at perceiving their own emotional states, they can work to regulate their emotions to help them persevere on challenging tasks in school. Use of emotion to facilitate thought is limited by a child's ability to understand the causes and time course of emotions (Denham, 1998), thus it develops later during school-aged years. In school, children may solve social problems necessary for cooperation, a skill needed for group-based work. Emotion understanding emerges in parallel with a child's linguistic development, around age two (Zeidner et al., 2003). Emotion regulation also develops along with a child's linguistic abilities as well as increases in their emotion knowledge. Preverbal emotion regulation strategies include thumb-sucking and gaze aversion (Zeidner et al., 2003), and as children develop linguistically during elementary school, they increasingly use cognitive rather than purely behavioral strategies, which continue to develop into adulthood (Saarni, 2000). With an increase in emotion regulation abilities, students are able to demonstrate productive group collaboration, tenacity on challenging tasks, and persistence in the face of failure. In a longitudinal study of children aged three to four, researchers collected ratings of children's emotional regulation and emotion knowledge, with results indicating that children who had higher emotional regulation and emotional knowledge also had higher social competence at ages three and four as well as later on in kindergarten (Denham et al. 2003).

Certain aspects of the environment, including parenting and peer interactions, have been associated with increases in children's emotional intelligence. For example, participation in family discourse about feelings and causality resulted in young children who were better able to engage in conversations about feelings and causality seven months later (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991). As children transition to formal schooling, the school environment increasingly affects children's emotional development due to the significant amount of time students spend in the classroom and school environments (Zins, 2004). Characteristics of the educational environment unique to certain cultures may influence their emotional development as well as the association between their emotional intelligence and academic performance.

1.3. Emotional Intelligence and Academic Performance

Upon entering formal schooling, emotional intelligence becomes even more important for students and educators. Students spend hours in school every day, and the emotional climate of a school inevitably affects the emotional well-being of students and staff. In the pursuit of a healthy and constructive emotional climate that fosters academic performance, emotional intelligence can be an important factor (Coetzee, 2007). Many teachers recognize the importance of a well-rounded education and how multiple aspects of children's abilities and functioning impact their academic performance (Brackett & Rivers, 2014). With the emergence of research and theoretical models of SEL (CASEL, 2016), efforts to explicitly promote children's SEL as a component of the academic curriculum in school have been increasing (Elias, 1997; Zins, Bloodworth, Weissberg, & Walberg, 2007). It is this combination of social, emotional, and academic learning (see Zins et al., 2007) as well as the importance of SEL to academic performance (Payton et al., 2008) that SEL interventions seek to promote.

Based on their review of 324,303 children in 317 studies of SEL programming in elementary and middle schools, Payton and colleagues (2008) support the notion that emotional intelligence and academic performance are associated. In all these cases, the programs increased emotional intelligence, positive behavior, and critically, academic performance. Increases in academic performance due to SEL programming were typically between 11 and 17 percentile points. Taken together, theorists argue that increased academic performance may be a direct function of emotional intelligence (Brackett & Rivers, 2014). Research associating increased academic performance to social and behavioral outcomes (e.g., Payton et al., 2008), as well as research associating increased emotional intelligence and social and behavioral outcomes (e.g., Brackett & Rivers, 2014), bolster the use of SEL programming as a mechanism for improving academic performance.

The associations between emotional intelligence, social and behavioral outcomes, and, importantly, academic performance, promotes the idea that children's emotional intelligence in children may predict their current and future academic performance. However, little work has been done to explore these associations cross-culturally. While there have been a limited number of studies looking at cross-cultural differences in emotional intelligence in adults (e.g., Shipper, Kincaid, Rotondo, & Hoffman , 2003; Vivian Tang, Yin, & Nelson, 2010), many do not use the four-branch model of emotional intelligence and none have discussed cross-cultural differences in the context of academic performance. Thus, this study is looking to fill the gap in research related to emotional intelligence, academic performance, and cross-cultural differences.

1.4. Cross-Cultural Differences

The current study explores the emotional intelligence and academic performance association between children from the United States and Japan. Japan's educational system has

consistently scored higher than the United States on international tests of academic performance (e.g., PISA, 2012), and this disparity seems to indicate that children from Japan will likely score higher than children from the United States on academic performance assessments in the current study. Moreover, if the relationship between emotional intelligence and academic performance holds cross-culturally, then Japanese students will also do better on emotional intelligence assessments.

Certain activities and teaching practices commonly found in the Japanese education system support children's emotions intelligence (Tough, 2013). For example, instead of focusing on grades and competition, Japanese students are encouraged to focus on their personal mastery of concepts and skills, which develops emotional intelligence. In this regard, students' perseverance on challenging tasks is much more important than arriving at the correct answer (see also, "grit"; Duckworth, Peterson, Matthews, & Kelly, 2007). This unique focus on perseverance and personal growth is a representative of the bidirectional theory of affect, which posits that perceived academic progress mediates the relationship between academic goals and achievement emotions (e.g., enjoyment and hope; Hall, Sampasivam, Muis, & Ranellucci, 2016). In the Japanese system of education, the emphasis on student-directed progress and performance-approach goals may result higher levels of emotional intelligence.

Further, the organization and teaching style of Japanese classrooms follows a system that would seem to support the development of emotional intelligence. The Japanese cultural script of teaching requires students to practice (1) frustrated failure in which a student fails, but is encouraged to persevere without a teacher providing an answer; (2) group collaboration, and (3) debate (Stigler & Hiebert, 2009). In Japan, there is less focus on structural content, and teachers lecture and demonstrate with the students, not at them, which allows students to have a more

active hand in their education, thus developing emotional intelligence skills (Duckworth et al., 2007). In contrast to the teacher-focused model found in the United States, which consists of a teacher lecturing at the front of the class, Japanese students learn how to problem-solve independently without content-specific curricula. This system looks very similar to "This Kind of Teaching", which promotes respectful collaboration and emotional management (Green, 2014). With this focus on perseverance and group collaboration, students are using skills that are integral in the development of emotional intelligence. Based on this evidence, it is easy to see how Japanese students would develop skills integral in the development of emotional intelligence.

In contrast, the model of teaching apparent in the United States trains and rewards passive reception and rote memorization (Green, 2014). With the use of worksheets, overhead projectors, and chalkboards, students focus on specific content rather than encouraging students to actively engage with the personally relevant material (Stigler & Hiebert, 2009). Overall, it is evident that teaching and learning in the United States focuses more on definitions and structural content, rather than on the rationale of solving a problem. Without the focus on group collaboration, peer interaction, and sustained mental stamina, students are not developing their emotional intelligence (Green, 2014). Moreover, with the disconnect between academic material and the social aspects of education, there are fewer opportunities for educators to integrate emotional intelligence into the curriculum. Overall, the paradigm of education in the United States does not nurture emotional intelligence in the same way the Japanese system appears to.

1.5. The Current Study

The current cross-cultural study measured differences in emotional intelligence in students from the United States and Japanese in order to better understand the role of emotional

intelligence in academic performance. By using a cross-cultural sample of children ages 8–11

from the United States and Japan, we seek to better understand the international achievement

gap. The first research question asks if there is a cross-cultural difference in academic

performance and emotional intelligence. Our hypothesis is that Japanese students will score

higher on assessments of academic performance as well as assessments of emotional

intelligence. The second research question asks if the association between emotional intelligence

and academic performance varies cross-culturally. Our hypothesis is that the association

between emotional intelligence and academic performance will vary between the United States

and Japan.

2. Method

2.1. Participants

For the sample from the United States, participants included 147 children ages 8–11 ($M =$

9.30; $SD = 1.07$) in second grade (5%), third grade (30%), fourth grade (45%), and fifth grade

(20%). The sample was 56% male and 44% female. The United States sample was drawn from

private, charter, and religious schools in two moderately-sized East Coast cities and one

Midwestern city. Due to the selective nature of these schools, students were most likely above

average in their academic performance. Thus, it is safe to assume their academic performance is

not necessarily representative of the average academic performance of students in the United

States. Moreover, there was variation between sites as to the number of children who

participated. On average, most children at schools participated with exceptions that included

students who were absent on the day of data collection or could not be rescheduled.

For the Japanese sample, participants included 159 children ages 8–11 ($M = 9.32$; $SD =$

0.88) in third grade (28%), fourth grade (37%) and fifth grade (35%). The Japanese sample was

48% male and 52% female. Students were recruited from one school in Japan. The school was a university-sponsored school, not a general public school. Similar to the United States sample, the Japanese students were likely above average for Japan in their academic performance. Therefore, the Japanese sample may not necessarily be representative of the average academic performance of students in Japan. At the Japanese school, almost all of the children in the school participated with exceptions that included students who were absent on the day of data collection and could not be rescheduled.

2.2. Procedures

In the United States, children were recruited by reaching out to afterschool centers and schools on the East Coast and in the Midwest. Approximately 20 schools and programs were contacted and three schools and three afterschool programs agreed to participate (15%). In Japan, children were recruited through the only school that was contacted and agreed to participate in the research. The school was recruited by a Japan-based colleague. In both samples, parents were asked to provide written consent for their child to participate in the study. On the day of the assessment, children were asked by the experimenter or a translator to give verbal assent for their participation in the study, which included explaining the purpose of the study as well as what to do if they had questions. If the child agreed, they were also given a form that explained the study. This study was approved by the Yale University Institutional Review Board.

After receiving parental consent and child assent to participate, the researcher conducted a simple priming procedure with each participant in order to ensure that the emotional language was as accessible as possible in each child's vocabulary before the start of the assessment. In this simple priming procedure, the experimenter initiated a conversation which consisted of asking

the children if "happy" was a positive or negative emotion as well as if "sad" was a positive or negative emotion. The priming procedure was similar to study conducted by Widen and Russell (2010).

Children then completed via computer an online Qualtrics survey consisting of five subsections. Some children were tested individually and some in groups; the grouping depended on the number of children tested at the site. At sites with many children participating, testing was done in groups. Conversely, at sites with only a few children participating, children were tested individually. Children were first asked about their grade level in school (Section 1). They were then presented with five reading questions and five math questions (i.e., academic performance) corresponding to their grade-level. Reading questions were presented first, followed by math questions. This order mirrored the order in which the questions were presented in the academic assessment when it was originally administered in the state of California (California Department of Education, 2015). Every student in the same grade received the same reading and math questions in the same order for every trial. In the next section (Section 2), children were presented with a "gate-keeper" question. The purpose of the gate-keeper question was to identify children who were able to label the happy face and identify the story as "happy." All children who did so were included in the sample. Two students from the United States and seven Japanese children did not correctly label the happy stimuli and were omitted from the sample in order to ensure that they did not skew the data.

Each child was then presented with questions assessing their emotional intelligence, beginning with (Section 3) two sets of questions depicting characters in nine different emotionally-laden situations (i.e., happy, angry, fear, surprise, disgust, embarrassment, compassion, shame/guilt, contempt). For both samples, one set of questions included a character

with a Caucasian name and the other set of questions included a character with a Japanese name.

Next, two sets of photographs were presented in which the characters displayed facial

expressions illustrating the abovementioned emotions (Section 4). Similarly, one set of pictures

was of Caucasian faces and the other set of pictures were of Japanese faces. Ordering of the two

sets within Section 3 and Section 4 was at random to eliminate order bias.

Finally, each child was presented with the Conflict Management Scale (Section 5), which

was comprised of eight questions about hypothetical social situations with five possible

responses ranging from aggressive to collaborative and compromising (Developmental Studies

Center, 2000).

2.3. Measures

2.3.1. Academic performance (Section 1). Academic performance was measured using

questions from the California Standards Tests in English-Language Arts and Math (California

Department of Education, 2015). This assessment was used due its inclusion in previous

scholarly articles assessing student academic outcomes (e.g., Gulek and Demirtas, 2005), as well

as its availability online. According to guidelines for exploratory studies (Nunnally, 1967), this

measure is considered moderately reliable students in the United States sample (10 items; $\alpha =$

.55) and slightly less reliable for students from Japan (10 items; $\alpha = .47$).

2.3.2. Emotional intelligence (Sections 3, 4, and 5). Many adult assessments of

emotional intelligence are based on the four branch model of emotional intelligence (Mayer &

Salovey, 1997), including the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT;

Mayer, Salovey, & Caruso, 2002)[5]. For children under 10 years of age, there is no assessment of

emotional intelligence that tests all four branches. However, the MSCEIT uses recognition of

facial expressions and forced choice options for responses to emotion-laden vignettes to assess

emotional intelligence (Mayer et al., 2002). Based on available assessments (e.g., Denham, 1986; Rocha et al., 2013; Rivers et al., 2012), we focused on three developmentally-appropriate indicators of emotional intelligence spanning three of the four branches—understanding of emotion, perception of emotion, and regulation of emotion.

2.3.2.1. Perception of emotion (Section 4). Perception of emotion was measured using black and white photographs of faces depicting happiness, anger, fear, surprise, disgust, contempt, embarrassment, compassion, and shame. Children were asked to freely label the emotion of the facial expression. Despite the use of this measure in previous studies, we did not find it to be reliable for students from the United States (10 items; $\alpha = .34$) or for students from Japan (10 items; $\alpha = .25$; Nunally, 1967). This variable will be referred to as emotion perception.

2.3.2.2. Understanding of emotion (Section 3). Understanding of emotion was measured using stories of emotions based on those developed by Widen and Russell (2010) who used the stories in a study to determine if facial expressions or brief stories were stronger cues for basic social emotions. For each story, children were asked to freely label the emotion of the main character. The stories depicted six basic emotions (i.e., happiness, anger, fear, surprise, disgust, and contempt) and three social emotions (i.e., embarrassment, compassion, and shame; all stories are listed in Tables 1 and 2). According to Nunally (1967), this measure is considered moderately reliable in my exploratory study for students from the United States (14 items; $\alpha = .66$). It is also moderately reliable for students from Japan (14 items; $\alpha = .58$). This variable will be referred to as emotion understanding.

2.3.2.3. Regulation of emotion (Section 5). The regulation of emotion was measured using the Conflict Management Scale (CMS; Developmental Studies Center, 2000). The ability of students to suggest solutions to interpersonal conflicts that take both parties' positions into

account, as illustrated on the Conflict Management Scale, demonstrates the intrapersonal ability to regulate one's emotions in emotion-laden situations. The CMS is comprised of eight questions about hypothetical social situations with five possible responses ranging from aggressive to collaborative and compromising (Developmental Studies Center, 2000). This measure is reliable for students from the United States (8 items; $\alpha = .73$). It is also reliable for students from Japan (8 items; $\alpha = .70$). This variable will be referred to as emotion regulation.

2.3.3. Scoring. Understanding of emotion and perception of emotion was scored using a scoring key drawn from Widen and Russell (2003, 2010), who developed it based on ratings of two judges blind to the source of the labels. Responses varied from being a single word (e.g. scared) to being embedded in a phrase (e.g., very scared). Japanese responses were translated to English and then scored using the same criteria. If a participant listed an acceptable emotional term, then they received a score of one for that item. Table 3 includes emotional terms that were scored as accurate. If they listed an incorrect emotional term, then they received a zero. The total score for the understanding of emotion section was the sum of the score of each question in the emotion understanding task. The total score for the perception of emotion section was the sum of the score of each question in the emotion perception task.

The scoring for the regulation of emotion (i.e., CMS) consisted of assigning a numerical value based on the answer to each multiple-choice question. Responses range from (1) *aggressive* to (5) *collaborative and compromising* (Developmental Studies Center, 2000). The overall scaled score is the mean of the individual response scores (Developmental Studies Center, 2000).

2.4. Translation

All measures were translated using the decentered framework of translation. In social science research, there are two types of translation: symmetrical or decentered translation and asymmetrical or unicentered translation (Werner and Campbell, 1970). Decentered translation aims at maintaining loyalty to the meaning of each question, rather than focusing on maintaining the nuances of the source language (Werner and Campbell, 1970). Conversely, unicentered translation seeks to maintain loyalty to the source language, with the importance of the original language dominating the importance of the content (Werner and Campbell, 1970). For this study, we attempted to focus on decentered translation, working to keep the meaning of each question accessible for both English and Japanese speakers, while still retaining loyalty to the sentence structure and content that was presented.

Four separate translators, who were native speakers of Japanese as well as university students or professors, translated and reviewed the translation of each question. And while imperfect translation will always be a valid critique, every possible measure was taken to maintain validity to the question as well as produce a question that would be understood in Japanese. Moreover, in the translation of Japanese student responses back to English, there was a further level of possible translation error. Thus, it is safe to assume there were unintended biases and translational errors in regards to the Japanese data.

2.5. Data analyses

Analyses were conducted in Stata 14.2. Preliminary analyses included descriptive statistics and correlations. Primary analyses included a logistic regression, which assessed the odds of a child being either from the United States or Japan (United States = 1) based on the unique variance of each variable in the model (i.e., reading total score, math total score, emotion perception total score, emotion understanding total score, emotion regulation total score, age, and

gender) as well as follow-up *t*-tests, which quantified the magnitude of the mean difference between children from the United States and Japan (Research Question 1). Primary analyses also included hierarchical linear regressions used to explore the unique associations between academic performance and emotional intelligence as well as interactions between each indicator of emotional intelligence and nationality (Research Question 2). Continuous variables were mean centered to reduce multicollinearity.

3. Results

3.1. Preliminary Analyses

3.1.1. Descriptive statistics and correlations. Table 4 includes the descriptive statistics for the combined sample as well as for each individual country. The average academic and emotional intelligence scores for each sample are also listed in Table 4. Table 5 presents the bivariate correlations. Compared to students from the United States, students from Japan received lower total reading scores, lower scores of emotion perception, and lower scores of emotion understanding. For the total sample, all academic variables, including the total academic score, total reading score, and total writing score, were highly correlated with each other. Further, reading scores were significantly correlated with two out of three indicators of emotional intelligence (i.e., emotion perception and understanding) whereas math scores significantly correlated with one out of three indicators of emotional intelligence (i.e., emotion understanding). The three indicators of emotional intelligence were all significantly correlated, with the exception of the correlation between emotion understanding and emotion regulation. Of the indictors of emotional intelligence, emotion regulation was only significantly correlated with emotion perception. Understanding of emotion was highly correlated with all academic

variables. On the other hand, regulation of emotion was not correlated with any of the academic variables.

For the United States sample, all academic variables were highly correlated with emotional intelligence scores. Children with higher total academic scores scored significantly higher (rs (147) = .17–.31, ps < .05) in their total emotion understanding as well as emotion perception scores. Moreover, children with higher reading scores scored significantly higher (rs (147) = .19–.27, ps < .05) in their emotion perception and understanding scores. Children with higher math scores scored significantly higher (rs (147) = .24, ps < .01) in their emotion understanding scores. Further, all emotional intelligence variables were highly correlated. Children with higher emotion perception scores scored significantly higher in their emotion understanding scores as well as their emotion regulation scores (rs (147) = .21–.27, ps < .05).

For the Japanese sample, academic variables were not highly correlated with emotional intelligence variables. Only reading scores and emotion regulation scores were correlated (r (159) = .17, p < .05). Moreover, the Japanese sample exhibited a negative correlation between age and reading and academic scores. Older children performed significantly worse than younger students (r (159) = -.22, p < .01) in their reading scores and total academic scores. Finally, emotion perception was only correlated with emotion understanding for Japanese students. Children with higher emotion perception scores scored significantly higher (r (159) = .16, p < .05) in their emotion understanding scores.

3.2. Primary analyses

3.2.1. Research Question 1: Cross-cultural comparisons in scores. In an omnibus logistic regression analysis, reading total score, math total score, emotion perception total score, emotion understanding total score, emotion regulation total score, age, and gender were entered

as predictors of nationality. The model fit the data well, χ^2 (7) = 128.50, $p < .001$, Nagelkerke's

R^2 = .46. The odds being from the United States for all variables are listed as odds ratios in

Table 6. Being female was associated with greater odds of being from Japan. By contrast, age

was not associated with nationality. Children with higher math scores had statistically greater

odds of being from the Japan, wherein a one-unit increase in math scores was associated with

1.46 greater odds. By contrast, children with higher reading scores had marginally greater odds

of being from the United States, wherein a one-point increase in reading scores was associated

with 1.27 greater odds. Similarly, higher emotion perception and understanding scores were

associated with greater odds of being from the United States. A one-unit increase in emotion

perception and understanding scores was associated with 2.38 and 1.25 greater odds of being

from the United States, respectively. There was no statistical association between the American

and Japanese students with respect to their emotion regulation scores. With the exception of

gender, significant associations were explored with post-hoc t-tests.

       3.2.1.1. *Academic performance.* The difference between reading scores for students from

the United States versus Japanese was statistically significant, $t(304) = 2.29$, $p = .02$, d=0.27. On

average, children from the United States ($M = 3.99$, $SD = 1.01$) scored 0.27 standard deviations

higher than children from Japan ($M = 3.70$, $SD = 1.11$). Similarly, the difference between math

scores for students from the United States versus Japanese students was marginally significant,

$t(304) = -1.91$, $p = .06$, $d = -0.22$. Students from the United States ($M = 3.64$, $SD = 1.23$) scored

0.22 standard deviations lower than children from Japan ($M = 3.89$, $SD = 1.01$). Overall, the

effects can be classified as between small and medium in magnitude and were of comparable

size but were in opposite directions.

3.2.1.2. *Emotional intelligence.* The difference in emotion perception scores between the United States sample and the Japanese sample was statistically significant, $t(304) = 10.67$, $p < .001$, $d = 1.21$. On average, children from the United States ($M = 4.68$, $SD = 1.64$) scored 1.21 standard deviations higher than children from Japan ($M = 2.89$, $SD = 1.29$). Similarly, there was a statistically significant mean difference between the emotion understanding scores in the United States sample ($M = 7.52$, $SD = 2.31$) compared to the Japanese sample ($M = 5.88$, $SD = 2.44$), $t(304) = 6.01$, $p < .001$, $d = 0.69$. Overall, the effects can be classified as between medium and large.

3.2.2. Research Question 2: Cross-cultural comparison of the emotional intelligence and academic performance association. To determine how the association between academic performance and emotional intelligence varies by nationality, two separate linear regressions were performed using reading and math scores as the dependent variables. In both regressions, the reading and math scores were regressed onto the covariates, the emotional intelligence variables, and nationality. Reading and math scores were used as covariates in both regressions, respectively. Then, the interactions of the emotional intelligence variables and nationality were added to the model using a hierarchical regression framework.

For reading performance (Table 7), the main effects explained 11% of the variance in reading scores, $R_{\text{adjusted}}^2 = .11$, $F(7, 298) = 6.54$, $p < .001$. Most of the variance in reading performance was explained by math performance (7% variance explained), followed by gender (1%), nationality (1%), and age (1%). A one-unit increase in math scores was associated with a 0.26-unit increase in reading scores. Being female was associated with a 0.25 increase reading scores. A one-year increase in age was marginally associated with a 0.11 increase in reading scores. Being from Japan was associated with a 0.26 *decrease* in reading scores.

When the interactions were added to the model, the interaction effects explained an

additional 2% of the variance in the reading performance, $R_{adjusted}^2 = .13$, $\Delta F(3, 295) = 3.22$, $p =$

.02. Most of the additional variance in reading performance was explained by the statistically

significant interaction between nationality and emotion regulation. Simple slope analyses

revealed that for the Japan sample, a one-unit change in emotion regulation scores was

associated with 0.39-unit increase in reading scores, $p = .001$. By contrast, for the United States

sample, a one-unit change in emotion regulation scores was associated with no change in reading

scores, $b = .00$, $p = 1.00$. Figure 1 shows the interaction between emotion regulation and reading

performance with the association stronger for students in the Japan compared to the students in

the United States.

For math performance (Table 8), the main effects explained 10% of the variance in

math scores, $R_{adjusted}^2 = .10$, $F(7, 298) = 5.84$, $p < .001$. Most of the variance in math

performance was explained by reading performance (7% variance explained), nationality (3%),

and emotion understanding (2%). For every one-point increase in reading performance, students

increased in their math performance by 0.29 points. Being from Japan was associated with a

0.46 increase in math performance. For every one-point increase in emotion understanding,

students' math performance increased by 0.07 points. When the emotional intelligence by

nationality interactions were added to the model, the model did not explain any additional

variance over and above the main effects, $R_{adjusted}^2 = .10$, $\Delta F(3, 295) = 0.49$, p = .69.

4. Discussion

The current study explored differences in emotional intelligence and academic

performance between students from the United State and Japan. This research seeks to highlight

the importance of cross-cultural research when evaluating the international achievement gap as

well as determining the efficacy of SEL programming in the United States and abroad. Based on these goals, two broad questions guided our research. The first question was whether there was a cross-cultural difference in academic performance or emotional intelligence between the elementary-aged students in the United States and their peers in Japan. The second question was whether there was a cross-cultural difference in the association between emotional intelligence and academic performance in these samples. Based on extant research documenting the extensive role emotion plays in the Japanese classroom, especially in elementary education, as well as the high level of academic performance of Japanese students, we hypothesized that students from Japan would score higher on both academic and emotional intelligence assessments.

Based on the results of the study, there were three major findings. First, contrary to our expectations, children in the United States scored statistically higher than children in Japan on reading and emotional intelligence. By contrast, children in Japan scored statistically higher on the math assessment than children in the United States. Second, emotion understanding predicted math scores in both samples. Third, emotion regulation and reading scores were also associated, but only for Japanese students. Each of these findings will be discussed below.

4.1. Children in the United States Scored Statistically Higher than Children in Japan on Reading and Emotional Intelligence

In contrast to our hypothesis, students from the United States scored higher in reading, emotion perception, and emotion understanding. Based on PISA data, Japan is ranks first in reading performance, scoring 538 points (PISA, 2012). The average of all OECD countries is 496 points (PISA, 2012). The United States scored 498 points, which is lower than Japan, but still higher than the OECD average (PISA, 2012). Initially, we hypothesized that Japan would

score higher on reading assessments based on PISA and TIMSS scores. While this hypothesis was not confirmed, it is conceivable that the difference in reading scores on the PISA and TIMSS is truly not that great. Based on PISA data, there is only a 40 point difference between Japan and the United States on reading assessments, and both countries score above the OECD average. While this gap seems large, it might be the case that the difference in performance is not significant enough to reflect on all reading assessments, which is why the difference was not apparent on the reading assessment used in this study.

Moreover, since the PISA assessment is based on data collected form 15 year-olds, it is possible that the development of reading abilities is different in the United States and Japan. It could be that students in the United States start with higher reading scores than students in Japan, but that these differences shrink or reverse as students age. Another variation of this explanation is that students in the United States start with higher reading scores, but they don't continue this growth as they mature, rather their rate of growth decreases. Conversely, students in Japan might start with lower reading scores, but their growth rate might increase as they age.

For emotional intelligence, we found that there was a difference in emotional intelligence between the United States and Japan when using the emotion perception and emotion understanding tasks; however, there was no difference when using the emotion regulation task. A possible explanation for this phenomenon revolves around the culture of education in Japan. The Japanese education system is built on merit; however, it is also dichotomous. In elementary school, students and teachers collaborate, with an emphasis placed on deregulation, diversity, and individuality (Ishikida, 2005). However, by middle school and high school, students are severely limited in their ability to focus on organic intellectual cultivation due to stringent high school and college entrance exams (Ishikida, 2005). This transition from collaboration and

individualism to high-pressure exam preparation illustrates an extreme dichotomy between the two levels of public education in Japan.

Further, it could be that the meritocratic mindset of middle school and high school affects the overall system to such a degree that it hampers emotional intelligence even in younger generations. Conversely, it might be that it is not the fault of the intensity of later years, rather that elementary schools in Japan might be focusing on a well-rounded education but not truly emphasizing models that directly increase emotional intelligence. Without further research, it is impossible to know which explanation, if either, is the true cause of the difference in emotional intelligence between the United States and Japan. However, it can be assumed that due to the significant amount of time children in Japan spend in school or after-school programs, that education in some way affects their development of emotional intelligence. These are only a few reasons that may explain why the results of the present study do not match the aforementioned hypotheses.

4.2. The Association between Emotional Understanding and Math Scores was Apparent across Both Samples

Based on the linear regression analyses, results indicate that variance in emotion understanding explained approximately 2% of math scores across both samples even after controlling for variance in reading. Emotion understanding, and the task itself, may require cognitive abilities such as perspective taking and cognitive flexibility that overlap with those required for successful completion of mathematical tasks (Kloo, Perner, Aichhorn, & Schmidhuber, 2010). Thus, the association between emotional understanding and math scores could be due to association between the underlying skills of perspective taking and cognitive flexibility.

Emotional understanding relies on the understanding of others' viewpoints, similar to the skill of "perspective taking" that is commonly used in extant psychology literature. Perspective taking is the understanding that point of view is subjective and other people may hold different viewpoints (Kloo et al., 2010). In the realm of emotion understanding, it is easy to see how the understanding of others' emotions would fundamentally rely on the knowledge that they may hold different viewpoints from yourself.

Moreover, mathematic abilities often rely on cognitive flexibility, defined as the ability to adapt cognitive processes to new conditions and problems in the environment (Kloo et al., 2010). This flexibility falls under the domain of "executive functions," which are the higher-level process that enable the control of though and action. Cognitive flexibility seems to be integral in mathematic performance, since the ability to creatively apply knowledge to new problems is necessary for successfully solving math problems.

The skill of emotional understanding used in this study seems to rely on perspective taking, while the skill of math performance seems to rely on cognitive flexibility. Consequently, it is possible that the association between emotional understand and math could be due to the underlying association between perspective taking and cognitive flexibility, which has been documented in the literature (Kloo et al., 2010).

4.3. Emotion Regulation and Reading Scores were Associated for Japanese Students

For reading performance, there was a statistically significant interaction between nationality and emotion regulation, but only for Japanese students. This phenomenon suggests that students with higher emotion regulation skills were more likely to have higher reading scores if they were from Japan. Further, the main effect between nationality and emotion regulation masked the effect.

Our final finding could be due to the connection between language abilities and emotion regulation. The interrelated development of language skills and emotion regulation has been documented in young children (Eisenberg, Sadovsky, & Spinrad, 2005). Typically, young children use language as a means to self-regulate their own emotions, by using self-managing talk, as well as a way to communicate in social interactions (Eisenberg, Sadovsky, & Spinrad, 2005). Thus, it seems that the regulation of emotion relies on a critical understanding of language and how to use language to manage emotionally-laden situations (both internally and externally). This research doesn't explain why this finding was only apparent for students from Japan; however, it is a testament to the interconnection between linguistic abilities and emotion regulation. Further, it suggests that individuals who are more articulate may benefit from greater emotion regulation.

4.4. Study Limitations

Study limitations are mentioned throughout the discussion, but they will be recapped here. In cross-cultural research where translation is necessary, methods are often extremely difficult to validate and ensure against bias. This criticism holds for this study, since the translation of questions and back translation of answers presented an opportunity for bias or misinterpretation. An additional confound concerns the limited recruitment of schools in Japan. Moreover, due to the sample of students from the United States (students were primarily from charter or private schools), it is likely their academic performance is not representative of the average academic performance of students in the United States. Finally, in comparison to the PISA or TIMSS assessments discussed previously, the academic assessment used in this study was significantly truncated and less comprehensive. Due to the shorter nature of the academic assessment used, the assessment may not have captured the full intelligence of the students in

Japan, or it might have highlighted skills in which students from the United States were particularly proficient.

4.5. Conclusion

Overall, the results of this study illuminate many interesting facets of emotional intelligence in students from the United States and Japan. However, it does not appear that emotional intelligence is the driver of academic performance in these populations. Students in the United States had significantly higher levels of emotional intelligence, but very similar academic scores to student in Japan. Future research could explore how the United States and Japan compare when using students from public schools in the United States and a comparable sample in Japan. Taken together, it seems that the cross-cultural gap in emotional intelligence is significant in the populations we assessed, but the current findings do not explain the differences in overall academic performance between the United States and Japan.

Funding

References

Brackett, M. A., & Rivers, S. E. (2014). Transforming students' lives with social and emotional

    learning. *International handbook of emotions in education*, *368*.

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating

    emotional abilities to social functioning: a comparison of self-report and performance

    measures of emotional intelligence. *Journal of personality and social psychology*, *91*(4),

    780.

Boe, E. E., & Shin, S. (2005). Is the United States Really Losing the International Horse Race in

    Academic Achievement?. *Phi Delta Kappan*,*86*(9), 688.

California Department of Education (2015). CST Released Test Questions. Retrieved from

    http://www.cde.ca.gov/ta/tg/sr/css05rtq.asp

CASEL (2016). What is Social and Emotional Learning? Retrieved from

    https://casel.squarespace.com/social-and-emotional-learning/

Coetzee, M. (2007). *Emotional intelligence in the classroom*. Juta and Company Ltd.

Denham, S. A. (1986). Social cognition, prosocial behavior, and emotion in preschoolers:

    Contextual validation. *Child development*, 194-201.

Denham, S. A. (1998). *Emotional development in young children*. Guilford Press.

Denham, S.A., Blair, K.A., DeMulder, E., Levita,s J., Sawyer, K., Auerbach-Major, S. (2003).

    Preschool emotional competence: pathway to social competence. *Child development*,

    74:238–56.

Developmental Studies Center (2000). *Conflict Resolution Skill Questionnaire*. Retrieved from

    www.devstu.org

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and

passion for long-term goals. *Journal of personality and social psychology*, *92*(6), 1087.

Dunn, J., Brown, J., Slomkowski, C., Tesla, C., & Youngblade, L. (1991). Young children's

understanding of other people's feelings and beliefs: Individual differences and their

antecedents. *Child development*, *62*(6), 1352-1366.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The

impact of enhancing students' social and emotional learning: A meta-analysis of school-

based universal interventions.*Child development*, *82*(1), 405-432.

Eisenberg, N., Sadovsky, A., & Spinrad, T. L. (2005). Associations of emotion-related regulation

with language skills, emotion knowledge, and academic outcomes. *New directions for

child and adolescent development*,*2005*(109), 109-118.

Elias, M. J. (1997). *Promoting social and emotional learning: Guidelines for educators*. ASCD.

Green, E. (2014). *Building a better teacher: How teaching works (and how to teach it to

everyone)*. WW Norton & Company.

Gulek, J. C., & Demirtas, H. (2005). Learning with technology: The impact of laptop use on

student achievement. *The journal of technology, learning and assessment*, *3*(2).

Hall, N. C., Sampasivam, L., Muis, K. R., & Ranellucci, J. (2016). Achievement goals and

emotions: The mediational roles of perceived progress, control, and value. *British

Journal of Educational Psychology*.

Ishikida, M. Y. (2005). *Japanese education in the 21st century*. iUniverse.

Kloo, D., Perner, J., Aichhorn, M., & Schmidhuber, N. (2010). Perspective taking and cognitive

flexibility in the Dimensional Change Card Sorting (DCCS) task. *Cognitive

Development*, *25*(3), 208-217.

Mayer, J.D., Salovey, P., & Caruso, D. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). Version 2.0.* Toronto, Canada: Multi-Health Systems.

Mayer, J.D. & Salovey, P. (1997). What is emotional intelligence? In P. Salovey and D. Sluyter (eds.): *Emotional development and emotional intelligence: educational implications* (pp. 3-31). New York: Basic Books.

Nunnally, J. C. (1967). Psychometric theory, New York: McGraw-Hill Book company.

Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). The Positive Impact of Social and Emotional Learning for Kindergarten to Eighth-Grade Students: Findings from Three Scientific Reviews. Technical Report. *Collaborative for Academic, Social, and Emotional Learning (NJ1)*.

PISA, O. (2012). Results in Focus What 15-year-olds know and what they can do with what they know. *2014-12-03]*. Retrieved from http:////www, oecd. org/pisa,/keyfindings,/pisa-2012-results-overview, pdf.

Provasnik, S., Kastberg, D., Ferraro, D., Lemanski, N., Roey, S., and Jenkins, F. (2012). Highlights From TIMSS 2011: Mathematics and Science Achievement of U.S. Fourth- and Eighth-Grade Students in an International Context (NCES 2013-009 Revised). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Rivers, S. E., Brackett, M. A., Reyes, M. R., Mayer, J. D., Caruso, D. R., & Salovey, P. (2012). Measuring emotional intelligence in early adolescence with the MSCEIT-YV psychometric properties and relationship with academic performance and psychosocial functioning. *Journal of Psychoeducational Assessment*, *30*(4), 344-366.

Rocha, A., Roazzi, A., Silva, A., Candeias, A. A., Minervino, C., Roazzi, M., & Pons, F. (2013).

　　　Test of Emotional Comprehension: Exploring the underlying structure through

　　　Confirmatory Factor Analysis and Similarity Structure Analysis.

Saarni, C. (2000). Emotional competence: A developmental perspective.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and*

　　　personality, *9*(3), 185-211.Salovey, P., & Mayer, J. D. (1990). Emotional intelligence.

　　　Imagination, cognition and personality, *9*(3), 185-211.

Shipper, F., Kincaid, J., Rotondo, D. M., & Hoffman IV, R. C. (2003). A cross-cultural

　　　exploratory study of the linkage between emotional intelligence and managerial

　　　effectiveness. *The International Journal of Organizational Analysis*, *11*(3), 171-191.

Stigler, J. W., & Hiebert, J. (2009). *The teaching gap: Best ideas from the world's teachers for*

　　　improving education in the classroom. Simon and Schuster.

Tough, P. (2013). *How children succeed*. Random House.

Vivian Tang, H. W., Yin, M. S., & Nelson, D. B. (2010). The relationship between emotional

　　　intelligence and leadership practices: A cross-cultural study of academic leaders in

　　　Taiwan and the USA. *Journal of managerial psychology*, *25*(8), 899-926.

Werner, O., & Campbell, D. T. (1970). Translating, working through interpreters, and the

　　　problem of decentering. *A handbook of method in cultural anthropology*,*398*, 420.

Widen, S. C., & Russell, J. A. (2003). A closer look at preschoolers' freely produced labels for

　　　facial expressions. *Developmental psychology*, *39*(1), 114.

Widen, S. C., & Russell, J. A. (2010). Children's scripts for social emotions: Causes and

　　　consequences are more central than are facial expressions. *British Journal of*

　　　Developmental Psychology, *28*(3), 565-581.

Zeidner, M., Matthews, G., Roberts, R. D., & MacCann, C. (2003). Development of emotional intelligence: Towards a multi-level investment model. *Human development*, *46*(2-3), 69-96.

Zins, J. E. (Ed.). (2004). *Building academic success on social and emotional learning: What does the research say?*. Teachers College Press.

Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation*, *17*(2-3), 191-210.

Table 1. First Set of Stories with Causes and Consequences for Each Emotion

Emotion	Story
Happiness	One day, it was John's birthday. All his friends came to his birthday party and gave him presents. John jumped up and down and clapped his hands.
Anger	One day, John was waiting in line. Then a girl cut in line in front of him. She didn't even ask. John shoved her out of line and yelled at her.
Fear	One day, John was walking down the street when a big dog started growling and chasing him. John screamed and ran away as fast as he could.
Surprise	One day, John came home, and his mom's hair was pink. This had never happened before. John just stared and tried to figure out why his mom's hair was pink.
Disgust	One day, John took a big bite of an apple. But it was rotten inside. It tasted awful. John spit it out as fast as he could and threw the apple on the ground. He did not want to touch it.
Embarrassment	One day, John spilled grape juice all over his white shirt. All the kids laughed at him. John's face turned very red, and he looked away from everyone. He wished that he could hide.
Compassion	One day, John was walking on a slippery sidewalk. John saw another kid slip and hurt himself very badly. John went over to the boy to see if he was okay.
Shame/Guilt	One day, John took his sister's favorite teddy bear and threw it in the trash. His sister cried and cried. John wanted to give it back but he couldn't because his mom had already taken out the trash. John stayed in his room and didn't want to talk to anyone.
Contempt	One day, John was at school. There was a boy in his class who always did stuff to get the teachers attention. The boy was always acting up in class so she would notice him. Or if the teacher wanted someone to help her, he always wanted to be picked. John didn't talk to that boy, and he didn't sit next to him.

*The protagonist in each story was counterbalanced.

Table 2. Second Set of Stories with Causes and Consequences for Each Emotion

Emotion	Story
Happiness	One day, it was a nice day so Haruto went outside to play in his backyard. As he walked outside, the sun was shining and the birds were signing in the tree.
Anger	One day, Haruto built a block tower. But then a boy came and knocked Haruto's tower down on purpose. Haruto yelled at the boy and hit him, He clenched his fists and stomped his feet. He yelled really loud.
Fear	One day, Haruto was sleeping in his bed. Then something woke him up. His room was dark, and he was all alone. Something was moving in his closet: He thought it was a monster. He screamed and pulled the covers up over his head.
Surprise	One day, Haruto opened the fridge. But there was no food inside. There were only tools. Haruto just stared and tried to figure why there were tools in the fridge.
Disgust	One day, Haruto saw a yummy looking apple on the counter and decided to eat it. But when he picked it up, his hand squished right through a slimy rotten spot. He through the apple away and looked a brown stuff on his hand.
Embarrassment	One day, Haruto was at school and peed in his pants. There was a big wet mark on his jeans. All the kids laughed at him. His face turned very red, and he looked away from everyone. He wished that he could hide.
Compassion	One of the kid's in Haruto's class didn't have any lunch. She looked really hungry. Haruto shared his sandwich with her and gave her one of his cookies.
Shame/Guilt	Haruto decided to toss a baseball in the house even though it was against the rules. He threw the ball a little too high and smashed a window. His mom came in and said she was disappointed in him.
Contempt	Haruto and his friend did a group project together. Haruto spent weeks working on his half. On the day the project was due, Haruto's friend told him he hadn't done anything and they would probably fail. Haruto didn't want to work with that friend on a project ever again.

*The protagonist in each story was counterbalanced.

Table 3. Acceptable Emotion Labels

Happy		
Amiable	Exhilarated	Joyous
Amused	Exuberant	Joyful
Amusement	Festive	Jubilant
Appreciated	Giddy	Loving
Bubbly	Glad	Nice
Carefree	Gleeful	Overjoyed
Cheerful	Good	Perky
Content	Gratified	Pleasant
Delighted	Great	Pleased
Ecstatic	Happy	Satisfied
Elated	Happy b/c she's helping	Serene
Elation	him	Thrilled
Enthusiastic	Humorous	Tranquil
Excited	Jovial	Upbeat
	Joy	Uplifted
Angry		
Aggravated	Displeased	Jealous
Aggressive	Enraged	Livid
Anger	Exasperated	Mad
Angry	Frustrated	Militant
Animosity	Fuming	Offended
Annoyed	Furious	Outraged
Belligerent	Grouchy	Peeved
Bitter	Grumpy	Perturbed
Bothered	Hostile	Pissed
Confrontational	Indignant	Sullen
Defiant	Infuriated	Ticked Off
Cross	Irate	Vengeful
Disgruntled	Irritated	Vindictive
	Irritable	
Fear		
Afraid	Freaked out	Panic
Alarmed	Frightened	Petrified
Angst	Hesitant	Scared
Anxious	Horror	Terrified
Apprehensive	Horrified	Threatened
Edgy	Intimidated	Timid
Fear	Nervous	Worried
		Worry

Surprise		
Amazed	Disbelieving	Startled
Astonished	Doesn't believe something	Stunned
Awed	Flabbergasted	Speechless
Awe-Struck	In Shock	Taken aback
Disbelief	Shocked	
Disgust		
Disgusted	Like he drank bad milk—ew	Revolted
Grossed out	Nasty	Yucky
Gross	Queasy	Yuck
Icky	Repelled	
	Repulsed	
Embarrassed		
Awkward	Humiliated	Sheepish
Bashful	Mortified	Shy
Embarrassed	Self-conscious	Uncomfortable
Compassionate		
Bad for his friend	Empathetic	Sad for her sister
Benevolence	Empathy	Sorry
Caring	Helpful	Sorry for someone
Compassion	Pity	Sympathetic
Concerned		
Shame/Guilt		
Angry at herself	Guilty	Sorry for what she did
Ashamed	Shame	Unworthy
Disgraced	Shameful	Worthlessness
Contempt		
Better than others	Disdain	Resentful
Contempt	Dislike	Scorn
Didn't like him/her	Dismissive	Smug
Disapproving	Hate	Spiteful
	Hateful	

Table 4. Means and Standard Deviations for Participants Divided by Total Population Sample,

United States Sample, and Japanese Sample

	N	*M*	*SD*	*Range*	*Skew*	*Kurtosis*
Age						
Total	306	9.31	0.98	8–11	0.17	-0.99
United States	147	9.30	1.07	8–11	0.23	-1.20
Japanese	159	9.32	0.89	8–11	0.90	-0.76
Grade Level						
Total	306	1.94	0.81	0–3	-0.15	-0.90
United	147	1.80	0.81	0–3	-0.18	-0.52
Japanese	159	2.07	0.80	1–3	-0.13	-1.41
Emotion Perception Total						
Total	306	3.75	1.72	0–9	0.31	0.10
United	147	4.68	1.64	1–9	0.14	0.03
Japanese	159	2.89	1.29	0–6	-0.14	-0.33
Emotion Understanding Total						
Total	306	6.67	2.50	1–13	-0.16	-0.59
United	147	7.52	2.31	2–12	-0.50	-0.25
Japanese	159	5.88	2.44	1–13	0.16	-0.30
Emotion Regulation Total						
Total	306	3.29	0.82	0–5	-1.06	1.91
United	147	3.33	0.90	0–5	-1.37	2.73
Japanese	159	3.26	0.74	1–5	-0.59	0.19

Table 5. Bivariate Correlations between Covariates, Academic Performance, and Emotional Intelligence Variables

	1	2	3	4	5	6	7	8
1. Nationality								
2. Gender	.07							
3. Age	.01	.05						
4. Grade	$.16^{**}$	.10	$.86^{**}$					
5. Reading Score	$-.13^{*}$	$.12^{*}$	.11	.07				
6. Math Score	.11	.00	.00	.02	$.30^{**}$			
7. Emotion perception	$-.52^{**}$	.10	.05	-.03	$.15^{**}$	-.02		
8. Emotion understanding	$-.33^{**}$	.08	$.19^{**}$	.11	$.18^{**}$	$.13^{*}$	$.34^{**}$	
9. Emotion regulation	-.04	$.13^{*}$	$-.14^{*}$	$-.20^{**}$	.04	.07	$.13^{*}$	.06

**Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 6. Regression of Nationality onto Covariates, Academic Performance, and Emotional Intelligence

Variable	Odds Ratio	p
Gender	2.41	.01
Age	1.24	.21
Reading Performance	0.79	.09
Math Performance	1.46	.00
Emotion Perception	0.42	.00
Emotion Understanding	0.80	.00
Emotion Regulation	1.02	.76

Note. Nationality was coded as Japan = 1, and gender was coded as female = 1.

Table 7. Regression of Covariates, Nationality, and Emotional Intelligence on Reading Performance

	b	SE	95% CI	p	ω^2	F	$R_{adjusted}^2$
Model 1						6.54	.11
Math Performance	0.26	0.05	0.16, 0.37	.00	.07		
Gender	0.25	0.12	0.00, 0.49	.05	.01		
Age	0.11	0.06	-0.02, 0.23	.10	.01		
Nationality	-0.26	0.15	-0.55, 0.03	.08	.01		
Emotion Perception	0.04	0.04	-0.04, 0.12	.34	.00		
Emotion Understanding	0.03	0.03	-0.03, 0.08	.33	.00		
Emotion Regulation	0.00	0.08	-0.15, 0.15	.99	.00		
Model 2						5.65	.13
Nationality X Emotion Perception	-0.07	0.09	-0.24, 0.09	.38	.00		
Nationality X Emotion Understanding	-0.07	0.05	-0.17, 0.03	.17	.00		
Nationality X Emotion Regulation	0.39	0.15	-0.24, 0.09	.01	.02		

Note. Nationality was coded as Japan = 1, and gender was coded as female = 1.

Table 8. Regression of Covariates, Nationality, and Emotional Intelligence on Math Performance

	b	SE	95% CI	p	ω^2	F	$R_{adjusted}^2$
Model 1						5.84	.10
Reading Performance	0.29	0.06	0.18, 0.41	.00	.07		
Gender	-0.14	0.13	-0.40, 0.11	.28	.00		
Age	-0.06	0.07	-0.19, 0.07	.39	.00		
Nationality	0.46	0.15	0.15, 0.76	.00	.03		
Emotion Perception	0.00	0.04	-0.10, 0.08	.84	.00		
Emotion Understanding	0.07	0.03	0.02, 0.13	.01	.02		
Emotion Regulation	0.09	0.08	-0.06, 0.25	.24	.00		
Model 2						4.21	.10
Nationality X Emotion Perception	-0.03	0.09	-0.21, 0.15	.67	.00		
Nationality X Emotion Understanding	-0.05	0.06	-0.16, 0.06	.38	.00		
Nationality X Emotion Regulation	-0.10	0.16	-0.42, 0.22	.54	.00		

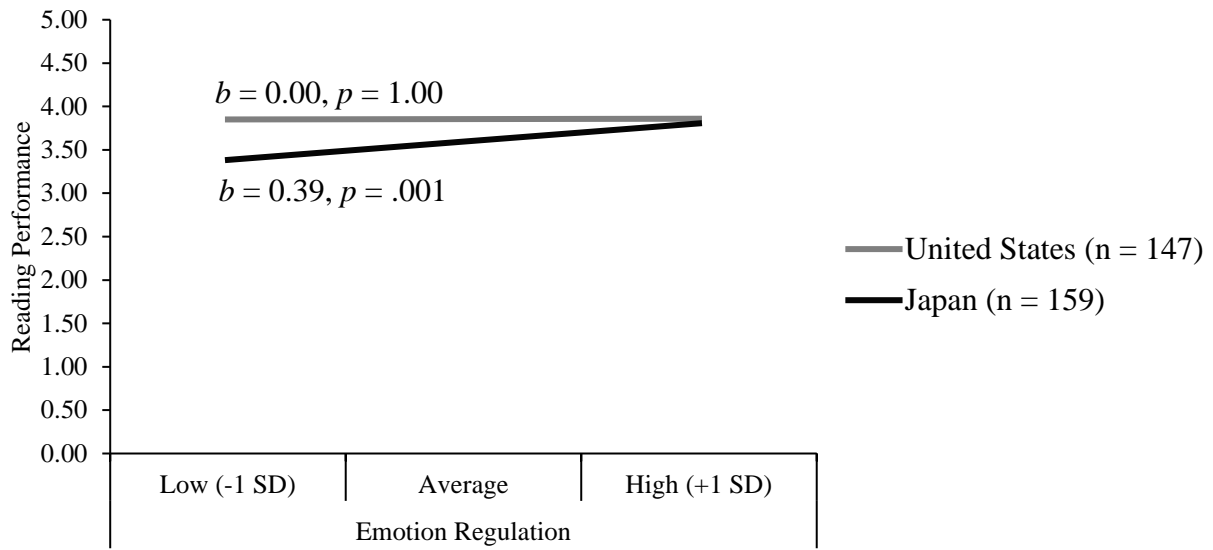*Note.* Nationality was coded as Japan = 1, and gender was coded as female = 1.

Figure 1. Regression of emotion regulation onto reading performance by nationality.